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NURSING FORUM

AN INDEPENDENT VOICE FOR PROFESSIONAL NURSING

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THIS, the first issue of NURSING FORUM, is dedicated to all who helped create it: to the stockholders of Nursing Publications, Inc. and charter subscribers who, by giving financial and encouraging support, made the dream of NURSING FORUM a possibility; to the editorial board and contributing authors who, by giving their time, talent and intellectual efforts, made the dream a reality.

* * *

Note to Contributors

Preparation of manuscripts for Nursing Forum

TYPE manuscripts 55 characters to a line on white paper. Submit an original, and one carbon copy whenever possible. Footnotes are not encouraged unless they are essential to the article. If used, they should be numbered consecutively within the text and should appear, with any acknowledgements the author wishes to make, on a separate page. Tables, graphs and illustrations will be accepted only when necessary to the text for the presentation or amplification of ideas. References should include in order: author, periodical, volume number in Arabic numerals, first page of article and year. In book references give in order: author or editor, title, edition number, city, publisher, year and page cited. The author is responsible for checking all references with the original publication for accuracy and for arranging references in order of citation. Manuscripts up to 8,000 words can be accommodated.

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AUTHORS

FLORENCE BLAKE, formerly professor of pediatric nursing at the University of Chicago, after thirty years' experience in pediatric nursing, still felt the need for clinical practice, especially with children and parents who were facing profound health crises. A year of study under a Rockefeller Foundation grant gave her this opportunity. Her article, "In Quest of Hope and Autonomy," based on her paper delivered at the NLN biennial meeting this year, is only one segment of the full report of her study which, it is anticipated, will be published in its entirety in the near future.

JAMES K. FEIBLEMAN, professor and chairman of the Department of Philosophy in Tulane University, New Orleans, and special lecturer in the Department of Psychiatry and Neurology at Louisiana State University Medical School, is a prolific writer, having authored some 22 published books and 125 articles. His article in this issue "The Nature of the Hypothesis," will be included in his forthcoming book on the scientific method.

GERALD GORDON, chief of the psychiatric section of the medical divisio nof E. I. duPont de Nemours and Company, as a psychiatrist and industrial physician, bases his advice on how to tolerate the responsibilities of administrative and executive jobs, without succumbing to a "stress" disease, on some fifteen year's experience with one of the nation's largest corporations.

CATHERINE M. NORRIS, director of nursing of the Illinois State Psychiatric Institute, Chicago, Ill., and a member of NURSING FORUM's editorial board, was encouraged to write the article on the "sick, sick trend" in the "greeting" card industry after she had expressed concern about the number of these cards finding their way into hospitals.

WARD DARLEY, M.D., presently, executive director of the Association of Medical Colleges, Evanston, Ill., and formerly, dean

IN PROFILE

of the University of Colorado School of Medicine, vice president in charge of health sciences, and president of the University of Colorado, spoke on the subject of professions and professional people at the University commencement in 1955 and so impressed a member of NURSING FORUM's editorial board we requested he write the article in this issue.

E. TODD WHEELER, architectural consultant in programming and planning of hospitals, medical schools, medical centers and union health and welfare facilities, is a member of the architectural firm, Perkins and Will, as director of hospital planning. He also heads a group of specialists in health facility planning in Chicago, White Plains, New York and Washington, D. C. Mr. Wheeler, the architect, and Mr. Wheeler, the author, did not write this article with tongue in cheek. He is 99 per cent behind his proposal, the "Big Sleep Philosophy" or as he would subtitle it, "Operation Morpheus."

MORTON J. RODMAN, PH.D., professor of biological sciences at Rutgers University, College of Pharmacy, Newark, N. J., and a recognized contributor to professional journals, has prepared a significant article on drug reactions—a subject that should be of concern to instructors of nurses and to every practitioner of nursing.

HOWARD E. WOODEN, cultural archeologist and historian, presents an introductory statement to a critical evaluation of both conventional and family-centered care currently being conducted at St. Mary's Hospital, Evansville, Ind., under a research grant (GN-7721) from the Division of Nursing, Public Health Service. In subsequent articles the author, who is chief investigator of the total study—"Hospital Culture—The Nurse and Patient Care," will share his findings with readers of NURSING FORUM.

Preface

THE EDITOR and editorial board envision the editorial approach of NURSING FORUM as focusing on the improvement of patient care in the broad interpretation of that term. We conceive the editorial purpose as providing an outlet for the exchange of original ideas, new concepts and stimulating thought, through reportorial articles, reflective essays, timely and analytical editorials and, if requested, book reviews and letters to the editor.

The orientation of NURSING FORUM articles will be toward widening professional horizons, by integrating and synthesizing the knowledge and insights of the allied disciplines with that of nursing. Each issue will reflect this broad editorial and professional approach. We will strive to attract and publish articles that emphasize the primary purpose of the magaizne—helping to promote more creative nursing in the cause of better patient care. To do this, we invite editorial contributions from those in nursing, the allied health and educational fields, and the behavioral sciences, who have interesting things to say and who say them interestingly.

This magazine has been created to fill a need that, in our opinion, has not yet been met, namely: to provide an outlet for nurses who, heretofore, to appear in print, have had to be published outside of nursing or in monograph or

mimeograph form. We see our place in professional journalism as an integrated magazine that is professional, though independent; that strives for academic as well as professional quality: that publishes so-called *avant garde* articles as well as longer, more comprehensive articles offered by competent authors who not only are authorities on their subject but are also capable of treating their subjects in depth.

Articles in NURSING FORUM will be selected for their contribution to the profession and to the professional nurse. Articles published will not necessarily reflect the views, opinions, or convictions of the editor and editorial board, but will appear because they reflect the current thinking or trends in patient care, the health professions, the physical, biological and behavioral sciences, professional education, or in society as a whole.

To promote optimum professional growth in nurses and to improve the patient care they provide, nursing, as a young developing profession, needs opportunity to examine ideas from many sources of information. The editor and members of the editorial board will strive to make this magazine a worthwhile source of information to complement nursing's other professional journals.

— Alice R. Clarke, *Editor*

A four-year old struggles to master the traumatic experience of open-heart surgery, while a nurse strives to provide the support needed.

IN QUEST OF HOPE AND AUTONOMY

by Florence Blake

SUZIE WAS standing in her crib in a large single room, her white nightie hanging to her ankles, as the sunlight, pouring in the window, silhouetted her frail, shapely body. Her shoulder-length, wavy auburn hair softened her pretty, pale, thin face. Her dark, brown eyes were bright, penetrating and shadowed with long, upturned lashes.

Poised on one foot with one hand gracefully holding the edge of her gown in the air, Suzie tilted her head toward me as I approached, looked searchingly into my face, her even, white teeth showing as she smiled and, in the language of the four-year old, said: "Who's going to give me a bath? I haven't had it yet."

Suzie was the first child with open-heart surgery for whom

I cared during the year in which the Rockefeller Foundation gave me the privilege of studying a group of acutely ill children. Prior to taking care of Suzie, I had had a succession of short clinical experiences with other children undergoing open-heart surgery—experiences in which I needed a tremendous amount of help and support from competent staff nurses and doctors before I could even begin to function as a helping person.

I was frightened by the responsibility I was carrying and knew I needed help to learn the myriad details of nursing necessary to care for these children. For example, when rereading the notes I recorded before my study of Suzie, I learn infinitely more about *me* than I do about the children who had had their hearts repaired. I needed much more experience before I could be free to see the individuality of the child, before I could relate to the child more than to the equipment and routine procedures. It was not that I was oblivious to the child's need for emotional support; it was because I could not give it until I had mastered the skills necessary to provide the physically protective nursing care required.

During these experiences, the awareness of my own anxiety and of the incapacitating fears of the parents, whom I could not adequately help because of my own inexperience, became acute. My awareness of the demands of the hospital culture and of the struggle acutely ill children have in coping with these demands also became intensified.

I have selected only one segment—what I call the "third stage"—of my study for this presentation. It was in this phase that Suzie manifested her struggle to regain hope and autonomy following her heart surgery. And it was in this stage"—of my study for this presentation. It was in this

care to support Suzie's attempted efforts in this direction.

Nursing care during the first two stages is by no means of lesser importance than the third—perhaps it may even be more important since it is in these two stages that there is the greatest physiological threat. These stages are also important psychologically, for it is then that the foundations for regaining autonomy are laid. However, since in this article I focus on only one stage, I will not give the details of Suzie's pre-operative period nor of the first two stages, except to say that when I observed Suzie's state of massive regression during the first 48 postoperative hours, I wondered what her behavior would be when she became fully aware of her surroundings and felt the impact of the treatment regimen on her.

In the second postoperative stage, Suzie was as dependent and as orally aggressive as a young baby. "Turn me over," "Hold me," "Put the pillow there," she demanded. In this latter phase, which I have called "The Stage of Infantile Dependency," the data reveal that she was struggling valiantly to regain trust in her world. She was not only struggling to regain trust, but also to regain and retain her autonomy.

Out of the full study, I chose to describe this segment because I believe the significance of this period for complete recovery from shock—and I mean physical as well as psychological—is not fully appreciated by hospital personnel. Most of us recognize that mistrust and resignation to the demands of the treatment regimen jeopardize opportunities for further personality development, but do we recognize their effects on the child physically?

My experience in that year of study leads me to believe that resignation has a deleterious effect on the child, slow-

ing down the speed of recovery. I raise the question whether this might not even be an important factor in the cause of death. Occasionally we hear of children whose hearts have been successfully repaired, who have weathered the early physiological crisis, but who have died later from no known cause or from pathology which was not serious enough to cause death. But mine is only a hypothesis. It must be experimentally validated. And this can only be done through collaborative research with a physician.

In Erik Erickson's article, "Youth and the Life Cycle," (March-April, 1960, *Children*) he stated that no person ever permanently conquers the negative counterparts of each stage of instinctual development, but must "reconquer them continuously [throughout life] in the same way that the body's metabolism resists decay." He wrote that "all we learn [in the process of growth] are certain fundamental means and mechanisms for retaining and regaining mastery." He also observed that the adult who undergoes serious surgery has to repeat the battle with the negative counterparts of each stage of instinctual development in the process of recovery.

I read this article before I began to analyze the data collected while caring for Suzie. After analysis, I am prompted to ask: Isn't this battle also necessary for the child? Erickson's article provoked many other questions which I reflected upon during my analysis of the data.

Instead of supporting the child to use his own powers to cope actively with his anxiety and fear, I believe we who are responsible for him tend to encourage submission to the point that he becomes docile and apathetic, and sometimes resigned to his fate as well. I have no proof-tested data to support this hypothesis as yet, but I hope some of you who

read this article will be sufficiently interested to study the responses of nurses to patients' efforts to assert themselves in the process of regaining their autonomy. I hope, too, that you will join the many teachers who are trying to improve methods of teaching and supervising to help students develop their perceptive powers and to learn to handle constructively their patients' struggle for self-realization.

A child's struggle to retain and regain hope and autonomy

Coping with feelings aroused by fearsome and painful treatment measures becomes an increasingly more difficult problem for the child who has undergone open-heart surgery as the postoperative days pass. Demands upon the child to adjust do not lessen as initial physical recovery takes place; they increase, and increase markedly. Although the child has more energy for psychic adaptive functioning during the third stage of the postoperative period, he has many new problems to deal with and a residual healing process to complete.

As recovery takes place, the child not only has to face the repetition of uncomfortable, known procedures, but he also has to adapt to new ones, such as the removal of drainage tubes, intravenous needles, stitches, pacemaker electrodes, and in some instances, blood transfusions as well. When intravenous fluid, nutrient and antibiotic administration is discontinued, the child has to have additional intramuscular injections of antibiotics, and is expected to take more fluids by mouth. This creates another crisis. He has already lived through so much. Faced with an increase of frightening experiences and demands upon him, the child's feelings of rebellion are inevitable. These experiences threaten his equilibrium and increase his feelings of helplessness,

hopelessness, powerlessness, resignation and insignificance.

How the child copes with this crisis is dependent upon the physical and emotional energy he has at his disposal, the ego strength he has to draw upon from past experiences, and the quality of the support he gets from his environment. The natural, healthy response to such a situation is to fight to gain control over what is happening to him and to master it. Some children can do this; others cannot. In some instances the drive toward mastery is thwarted by past experiences in home or in hospital during the pre-operative period. The child who repeatedly discovers that expression of feeling results in loss of love and/or punishment tends to retreat rather than fight for his rights to take steps toward becoming a self-governing person. Depletion of energy and heightened dependence upon others for approval and care which accompanies it make running the risk of incurring disfavor too great a chance for many a child—and, I might add, for many an adult as well.

The child who has acquired trust and self-realization in his home and has maintained these personality strengths throughout the pre-operative period in the hospital, seeks to regain and retain them postoperatively. He watches and questions to get the information he needs to mobilize his resources to cope with danger signals from within and threats from without. He expresses his feelings without fear of retaliation. He dictates to increase his self-esteem and to prove to himself that he has powers of control over himself and others. He asserts his right to be an active, functioning, independent person. In the process, he receives the attention he wants without having to face up to his deep longing for dependence. Some children devise rituals to help themselves feel that they are masters of the situation. Also, they

work hard to gain self-mastery during mealtime and through play.

Preventing resignation is one of the most important elements of nursing care during this psychologically critical stage of the postoperative period. Resignation, and the helplessness and despair which accompany it, consume energy often to the point where there is hardly enough left for the continuation of the healing process. Resignation increases mistrust and influences adversely the child's feelings about himself.

Preparing the child for all he will experience and encouraging his expression of feelings are effective ways of preventing resignation. But more important is it to help the child make use of his own powers to gain control of himself and the situation. This communicates to him that you value his efforts to acquire mastery and respect him as a person with a mind of his own.

Sometimes nurses forget that recuperation from an extensive operation takes energy, making it impossible for the child to do many things he was physically able to do before; things which were important to the maintenance of his feelings of self-esteem. This results in impairment of ego functioning. The child's defenses are weakened. The change in him not only frightens the child, but makes him feel helpless as well. The nurse's task is to help her patient regain his ego strengths by encouraging and giving him permission to express his feelings and assert himself.

Comforting, physical care strengthens the ego. Valuing his unique ways of coping actively with fearful and painful procedures and with other demands made upon him strengthens it further. It helps him master his feelings of helplessness and anxiety. It heightens his self-esteem. It supports him

in re-establishing his own identity and in regaining the autonomy he lost when the anesthesia was begun. With this accomplished, he is prepared for further growth. He will have energy to regain his physical powers and move on to find solutions to other difficult problems.

These are some of the theoretical concepts which relate to nursing care during the period the child is struggling to regain autonomy. They are based on the knowledge and theory I acquired while studying personality development and psychodynamics and analyzing the data collected during my experiences with Suzie and other children who had had open-heart surgery.

In this article I will try to illustrate some of the ways in which Suzie manifested her struggle to regain hope and autonomy and how I used these concepts to give the kind of nursing care that would help her toward her goals.

As a result of my experience with Suzie eight days preoperatively, I anticipated that she would be one who would fight for mastery postoperatively, rather than take flight from her problems. But I was not sure. I had observed and admired her sprightliness, her determination and her supreme effort to master her fears and anxiety before surgery. And she had succeeded very well, except during physical examination time and when she was put to bed to sleep. At these times she withdrew into her own private world, using lip stroking motions as a means to maintain her equilibrium. I knew that Suzie would have more frequent examinations by doctors after her operation and many painful, frightening procedures to face. I was not sure she could handle all of this without being overwhelmed with anxiety. How could I function effectively to keep Suzie's trust and drive for mastery alive?

This was the question that was uppermost in my mind while I cared for her.

Suzie's preparation for surgery

Suzie came into the hospital knowing she was going to be away from home while her heart was being repaired. In addition to feeling the impact of the unknowns involved in the comtemplated surgery, she must also have absorbed the anxiety her parents felt. "She knows something is bothering us. She knows there's a cloud at home," Mrs. Lee, Suzie's mother, said during the time she was responding to my questions. I asked her questions to elicit the information I needed to support Suzie's immature ego while she coped with her illness and the associated problems in adjusting to separation, treatment, and life in a new cultural environment.

Mrs. Lee spoke of her preparation of Suzie for hospitalization with little expression of feeling. Her voice as well as her feelings seemed intellectually controlled. This manner of speaking remained constant until the danger of the operation had receded well into the past.

Suzie had had an unusual amount of care during her short lifetime which made it natural for her to expect care from persons in her environment and to be the center of interest. Her older brother, Ted, age eleven, and sisters Ann and Debby, age nine and two, respectively, had all been larger and healthier at birth than Suzie. Suzie's small size at birth (2,600 grams), frequent bouts of croup which required two short periods of hospitalization, and a diagnosis of congenital heart disease at two years of age made highly protective maternal care an inevitable consequence.

The cardiac murmur discovered during an early neo-natal examination of Suzie was deemed at the time of minor sig-

nificance by the attending pediatrician. Not until its full significance was determined by diagnostic procedures, which required a third period of hospitalization did it become the major concern of Suzie's 40-year old parents. Even then, preventing croup seemed uppermost in the minds of this intelligent, European-born mother. The bouts of croup frightened her; she felt helpless in the face of Suzie's misery and stated that she feared she would lose her each time she became ill. Observations recorded by Suzie's mother from the time of her birth demonstrated that motor and psychological growth had progressed normally in spite of Suzie's health problem.

Now, in retrospect, I see what might have been done to help Suzie regain trust more quickly. Had her mother had the help of a social worker before Suzie's operation, I believe she would have been able to cope more constructively with her feelings of helplessness and fear lest Suzie die. Instead, during the early part of the postoperative period, she put distance between herself and Suzie. She was in the room for hours at a time, but her anxiety made physical contact impossible. Suzie needed her mother. Mrs. Lee longed to be nearer to her, too, but being physically close was too great a threat to her own emotional control. She also had fears which we were unaware of at the time—fears which could not be dispelled by a nurse who had so little experience in the care of children with open-heart surgery.

Before the end of the eight days of pre-operative nursing care, I was aware that Suzie was having problems in coping with: separation from her family and home environment; the fearsome demands of the hospital culture; frustration and anxiety about her body; and the preparation for the events surrounding impending operation and postoperative care.

Suzie continued to have these problems during the postoperative period, along with those arising from her debilitated physical state and the fears and anxiety associated with the treatment program.

Eleven days after admission, Suzie went to the operating room. The surgeons repaired a left primum auricular septal defect, a small ventricular septal defect, and clefts of the mitral and tricuspid valves. She was on extracorporeal circulation for 50 minutes and on the operating room table for 8 hours.

Regressed and withdrawn, the only verbal demands Suzie made in this immediate postoperative state were for security, as expressed in her pleadings to "Stay with me." She demonstrated little awareness of her body, of the apparatus that was attached to it, of the persons caring for her, or of what was going on around her or being done for her. The only procedures she resisted—and the resistance was weak—were suctioning and the administration of positive pressure.

On that postoperative day when assertion of oral dependent longings was a predominant characteristic of Suzie's behavior, she manifested these longings by calling for various things to eat—potato chips, raisins, chocolate milk—and asking me to feed her. Along with this, she expressed directly and indirectly a need for physical closeness, indicating mounting anxiety and helplessness. During this period she seemed greatly concerned about maintaining her own emotional integrity and equilibrium.

Her questions, "Why is he here?", "What is he going to do to me now?" began in the late afternoon of Suzie's second postoperative day whenever a doctor or technician entered the room. On the third day, when Suzie was awake for longer periods of time, she wanted to keep the doorway con-

stantly within her view, edging herself quickly back on the bed whenever she was turned away from the door. Her questions began the moment a person entered. She followed each one with her eyes, and invariably her brow furrowed and her fingers found their way to her lips. If I knew the doctor was there merely to inject antibiotics into the intravenous apparatus, I told her this. Her questions, however, continued until he left the room: "Will he put it in the bottle up there? Will he, Miss Blake?" The expression in her eyes made me feel she was pleading for assurance that the needle would not be inserted into her skin. Yet the tone of her voice conveyed mistrust. She seemed to want to trust my words but was unable to do so.

By her behavior, I knew that Suzie was expending her energy in listening. For example, after a doctor had finished taking blood from her finger for a blood count and hemoglobin level, he asked that her cribside be pulled up. Immediately, Suzie asked in a shaking voice: "What did that man say?" It seemed as though she were constantly expecting danger. Knowing what was coming next seemed of vital importance to her. In every possible instance, I told her what was going to happen. Caught off guard, she lost her valued self-control. She probably had more anger and anxiety to cope with as well, with the result she could not permit herself to retreat from the outer world to the degree that she was able to do before. This worried me for I knew her need for rest was urgent.

Questions similar to the following began, showing both dread and a need to be prepared for discomfort: "Are you going to give me the smell stuff now?" "When is the time for the sticker [hypodermic] thing?"

By the third postoperative day Suzie's physical state had

improved considerably, releasing energy to deal more actively with the problems she faced. She had had a good night's sleep without need for Demerol. She had had her first bowel movement and her vital signs showed progress toward stabilization, but her rectal temperature continued to rise to 38.6 centigrade (101.5°F.) in the late afternoon. However, with the use of aspirin suppositories, her temperature never rose above that level except on the evening after the pacemaker electrode and wires had been removed from her body. Her skin continued to have a jaundiced tinge, and twice her urine was brick red in color, showing the effects of the hemolysis of donor cells taking place in her body.

Although evidence of heart block persisted, the volume and rhythm of Suzie's heart beat never faltered. Her blood pressure was stabilized. These physical findings indicated that her heart was responding favorably to the natural strains of the healing process.

There were several events on the third postoperative day which contributed to Suzie's mounting fear and anxiety. After the chest drainage had stopped, the first chest tube was removed. To prepare her for the procedure, I used knowledge of her pre-operative interest in tube removal. But, unfortunately, neither my words nor Demerol subcutaneously helped to allay her fear. "Tell me when it's over," she pleaded as the doctor began to cut the stitches which anchored the tube to her skin. She shrieked when the tube was removed rapidly to prevent air from rushing into her chest cavity. However, the moment it was over she regained her composure and expressed relief at having the procedure ended. "I'm glad that tube is out," she said. "Now may I go home?"

During the ensuing hours I watched Suzie carefully to

detect any untoward physical responses to the tube removal. The only change was a 30 cubic centimeter increase in chest drainage. Rapid removal of the tube caused weeping of the chest lining, permitting drainage of the exudate trapped behind or around it.

During this period, I discovered another of Suzie's fears. The insertion of aspirin suppositories annoyed her for they threatened her capacity to control her anal sphincters. Her fright was manifested by her urgent demands to: "Hold the paper up to my fanny, I've got to poo. Hold it there now. Hurry! Put the paper under me. Ouch." The next day when she soiled the bed she was greatly distressed. "Get my poo. Clean me up!" she said. There was anxiety and guilt in her tone and signs of mounting tension. I hastened to clean her up to relieve her anxiety and guilt feelings. I tried to assure her that I understood the problem by saying: "When you are sick you can't help that Suzie. Soon you'll be able to ask for the pottie quickly enough. Now it hurts you to sit on it, but soon it won't hurt you as much as it does now. Then you'll be able to use the pottie just as you did before."

Another event that increased Suzie's worries occurred when the removal of the intravenous needle made a change in antibiotic orders necessary. Oral Albamycin (125 mg. three times daily) was begun, but Wycillin had to be given intramuscularly. That meant that Suzie had to undergo two intramuscular injections twice daily instead of one. Her responses to this change showed that it had forced her to draw heavily upon her own responses and to seek emotional replenishment from her environment.

By the fourth postoperative day Suzie was beginning to mobilize her resources to master her fear of needles, inhalations and suctioning. I tried to help her move toward mas-

tery of the medicated inhalations. "Tell me when you need a rest," I said each time I put the mask on her face. At first she shrieked, giving herself positive pressure which inflated her lungs more fully. The mask also served as a target for her aggression. Once her aggressive feelings found an outlet she began to participate in the procedure. Each time Suzie signalled her need for a rest by squeezing my hand, I removed the mask from her face, for I believed that mastery could be facilitated if she could have the control in her own hands.

The next day the orders to: "Put just a little bit on" (she referred to Alevair fluid), "Don't hold it on too long," and "Tell me when it's over," became a part of Suzie's self-devised inhalation ritual. On the fourth day, she participated by holding the mask close to her face. When I asked, "Shall I give you a rest from it now?", her response showed progress in adaptation. "No! Don't stop. I want you to get it over with as fast as you can," she said. She continued to dislike inhalations thoroughly and never hesitated to tell me so. In telling me how she felt, she not only protected herself from resignation, but she also met one of my goals in her care.

Suzie's progress with intramuscular injections resulted from her own ingenious methods of finding ways to make "hypo time" tolerable. When she saw me preparing the medicine she said, "What are you going to do? How many must I have?" She cried when I told her that two were necessary. After I had given her one injection she said, "Wait awhile before you give me the next?" When an hour had passed I wondered if I should confront her with the reality of the second one. Knowing Suzie's desire to put difficult things behind her, I waited, but not without tension because of the

importance of maintaining a high antibiotic blood level. After her bath, when I said I was going to make her bed, my prediction that I could trust Suzie to remember was corroborated. She said, "After that, are you going to give me the other shot?"

When the second injection was given Suzie added another step to her needle-time ritual: "Is that all for a long time?" she asked on the first and every day subsequently. "Yes, Suzie, it will be a long, long time before you have another one. It will be dark before you need it," I replied. I pointed out the time between injections hoping that it would strengthen her ego to cope with the dread and make it possible for her to get the rest she needed.

On the fifth day Suzie designed the final touches for her hypo-time ritual. After asking me why she had to have two "prickers," she suggested that we use band-aids at hypo time. She removed the crinoline and kept the dressing in readiness for post-procedure application. She also wanted on her bed ready for reading the book, *Doctor Dan,* a story of a boy who conquered his fear of bruises by learning to use band-aids.

With the help of these rituals, Suzie's behavior showed growing trust in her own capacity to deal with discomfort. The cessation of periodic venipunctures and tracheal suctioning also contributed to this. Suzie coughed well and raised mucus into her pharynx. "I hear a little croup in me," she would say, as I prepared her for coughing. "Aren't you glad I don't need any throat cultures any more?" she asked when I told her that her participation had made discontinuation of suctioning possible.

By this time, Suzie was also improved physically. She had responded positively to two test periods out of oxygen; her

temperature and respiration rate were normal; and her diet had been increased considerably. She smiled occasionally and made comments which demonstrated growing interest in objects outside of herself. She also voiced her wish to play, and took long naps during the day. Her questions revealing dread of hypos were confined to the two periods of the day when she knew they were going to be given. Requests for position change lessened markedly. Dangling, which had been begun on the sixth day, seemed to prove to Suzie that moving about was less painful than she imagined it to be. Tolerance for frustration increased, coming near to reaching a pre-operative level on her sixth postoperative day.

But most important of all, Suzie seemed to have regained hope. After preparation for removal of the second chest tube and Foley catheter from her bladder on the fifth postoperative day, she mentioned her repaired heart for the first time, and acted as if she really believed she would go home. "I've a new heart now," she said, "if I get my other tubes out today, I'll soon be going home." When her mother arrived on this day, Suzie smiled at her immediately. That had not happened before. Previously, she stared blankly or glowered when her mother first arrived. But on this day, after the last of the drainage tubes had been removed, she greeted her mother with a spirit she had not shown before. She raised herself up in bed and shouted excitedly, "My 'pee pee' tube is gone and so is the other red one."

Preparation for stitch and electrode removal was begun on Suzie's sixth day. It was then that she began studying her wounds and the stitches on her body, removing the remnants of cellophane from her chest and groin wounds. I covered her doll's torso with muslin, put stitches in the appropriate places and fastened a button on the chest to

represent the electrode. Suzie watched with fascination as I snipped stitches and pulled them and the button out from the muslin with forceps, talking while I worked: "The doctor just cuts the thread. Then he pulls the stitches and the metal piece out." After my demonstrations the subsequent conversation took place: First Suzie talked of her doll, Sally:

"Sally is laughing about having her stitches out. See her big laugh because she's going home. That's why. That thing is too tight on her.

"I think she's crying. She doesn't know the doctor will only cut the thread." (I put the doll, scissors and forceps beside Suzie.)

"No." (Suzie spoke loudly. Then she bent her head and smiled one of her elegant smiles as her eyes sparkled gaily.)

"It tickles her, doesn't it? It will tickle me, too." (Again, Suzie laughed. She peeked into the hall and changed the subject.)

"I saw Dr. W. who is mine. Dress Sally. Dress her *right now* because she's going home today." (She picked up the scissors, cut a few stitches and turned the job back to me.)

Unfortunately, removal of stitches on the eleventh day and of the pacemaker electrode a week later were painful and frightening experiences for Suzie. Between the time preparation was begun and the procedures done Suzie seemed to deny that they were impending. Occasionally, she asked me if removal would hurt and when would it be done, but there were fewer questions about these procedures than about those done before.

Suzie's cries through stitch and electrode removal were

in keeping with the pain she experienced. The stitches were deeply imbedded in eschar; their removal caused bleeding and pain. The sight of the needle frightened her. Her pupils dilated. She cried. Beads of perspiration stood out on her forehead. Her pulse rate increased considerably. But she held herself still. "Tell me when it's over. Put a band-aid on quick," Suzie said as the adhesive butterflies (Adhesive used to draw the edges of the wound tightly together) were put over several areas of the wound. When it was over, she asked, "You'll still take care of me, won't you?" She also sought reassurance that I would remain with her until her mother arrived.

Electrode removal was painless since Novacain was injected. However, after the electrode and the wires which lay against the myocardium were removed, Suzie needed careful observation to detect signs of myocardial irritation. Her vital signs were taken hourly, and when her temperature rose to 38.6° centigrade (101.5 F.), an aspirin suppository was used. When her temperature rose to 39.4° centigrade (102.9 F.), with accompanying rise in pulse rate to 160 beats per minute, an ice water mattress was placed beneath her. Throughout this reaction, her blood pressure did not rise appreciably. The next morning Suzie's temperature had dropped to normal, and other signs of myocardial irritation had disappeared.

On the twelfth postoperative day, after Suzie had had a blood count and been prepared for a supportive blood transfusion, she regressed markedly. But it was then that she was able to cuddle close in my arms. Before that, although Suzie had begged repeatedly to be held, when I actually held her she could not relax and enjoy it. During the morning of the twelfth day she listened to stories and watched the

doorway as she had done on the first day her operation had been scheduled. She also fluctuated between trying to make herself believe the transfusion might not be necessary and asking questions about it. "Maybe he won't have to do it," she said one minute, and the next minute: "How many times will he have to stick me? Will he leave it in long?" I told her more than one insertion of the needle might be necessary, that it would hurt when the needle was going in, but that she would be comfortable again when the blood began to flow into her body, and her mother would be with her all the time.

The fourteenth day marked the end of the dreaded intramuscular injections. Two days before, when Streptomycin was discontinued, Suzie could not believe her good fortune. For many mornings after, Suzie greeted me with questions to get reassurance that her medicine would come in the form of pills or fluid.

Nursing Support During Meal Periods

Suzie's drive to structure a situation to meet her need to feel powerful, self-directing, and in command of the situation was also pronounced at meal periods. On the afternoon of the third postoperative day, when her anxiety was the highest, she began to control the amount and manner in which she would take fluids. In the course of imbibing an ounce or two, she used a straw and a spoon, and shifted from wanting to drink from a small and large glass to wanting fluids from a pitcher. It almost seemed as if Suzie were trying to figure out whether she was still a baby or a toddler or a grown-up child.

On the fourth postoperative day, Suzie's fluid and energy requirements had to be met by fluid intake by mouth. Each

time I offered her a drink I asked her what she wanted to drink from. I did this because I valued her capacity to make a choice, and because I surmised it would help her regain her self-esteem and autonomy. In most instances she preferred fluid from a small glass with a straw, and began to tell me how much she wanted—"That's all," she would say. A few times she took three ounces at a time, but most often she stopped abruptly after taking a smaller quantity.

By the next day, Suzie's drive to control at mealtime became intensified. Early in the morning when I suggested that it was time for breakfast she said, "You'd better wait with chocolate milk. I'll tell you when I want breakfast." When I brought her tray, Suzie said she wanted to unpeel the egg and eat it by herself. When she unpeeled it, she wanted salt. Then she said, "I'm tired. I need a rest. I'll only eat what I want. When I'm full, I'll tell you. OK?" After each bite she said, "I'm tired." I continued feeding her, saying, "I'm going to pop another bite in." I had observed her mother doing this during the pre-operative period, and I thought it might be a way of encouraging her to eat more now. After finishing the egg, I offered chocolate milk. "I told you after the egg I was going to sleep. Let's go to sleep *now*," she said belligerently. "Drink until you make a noise," I suggested, to give her some way to feel powerful. She used the straw and smiled up at me when a noise told her she had emptied the glass.

At lunch time that day similar attempts at control were observed. When I introduced the first bite of potatoes and meat, Suzie stormed, "I don't want any. I'll only take one bite." But she continued to open her mouth for food as she verbally resisted. "Four more after this," I said, to help her know what I thought she needed. Even though she cried

out loudly, "No more," she opened her mouth and accepted the food.

Suzie's behavior revealed the existence of several conflicting drives. She must have felt rebellious, for she had many frustrations, considerable anxiety with which to deal, and many demands were made on her. At the same time Suzie needed nourishment to meet her energy and fluid requirements. Although she tried to make me believe that she was not hungry and fought to control, frustrate and punish me, and to assert her independence, she also wanted food, to be fed, and to please me. Had she not desired food, she would not have opened her mouth to receive it. Nor would she have passively acquiesced to my efforts to feed her if she had really wanted to do it herself. Her repeated use of "OK," after she had asserted herself, suggested to me that she wanted to know my reaction to her manifesto. I also felt it connoted a wish to please me.

Finding ways to support the healthy part of Suzie's personality was as important now as it had been previously and would be during the convalescent stage. After becoming convinced that Suzie wanted food, I structured the expression of my expectations regarding adequate intake in ways which would neither increase her negativism and resistance nor threaten her defenses against anxiety and helplessness. As I fed her, I also watched carefully to detect signs of growth toward independence in the feeding situation.

Negativism continued to be apparent on the seventh postoperative day. At breakfast time, Suzie asserted herself again, "I don't want that," but, like the two-year-old, her behavior signaled that she wanted me to recognize the power of her person and to give her the attention she craved.

Meal periods on the twelfth day were quite different from

those before that time. Suzie's need to resist and assert herself before she ate began to disappear; I detected she was ready to assume more responsibility in feeding herself. On this day, I filled the spoon and handed it to her to test her response to a change in the meal-time regimen. Suzie not only accepted the spoon full of food, but she also pointed out that she had emptied it. "Miss Blake, look! It's empty. Fill it again," she said. After finishing the first serving, she requested seconds for the first time since her operation:

SUZIE: "Do I look tired?"
MISS BLAKE: "No you don't, not a bit."
SUZIE: "I'm ready for more."
MISS BLAKE: "More what?"
SUZIE: "More meat."
MISS BLAKE: "Your plate is empty. I guess I'd better fill it up again."
SUZIE: "No, I'll drink chocolate milk. Then you get me some more."

Suzie's appetite did not increase markedly, nor did the meal periods always go smoothly. At times she dawdled excessively and wanted to be fed. The dawdling frustrated my goals and, as a result, increased my tension. I wanted to see her gain weight and hoped that I would some day hear her say, "I'm hungry."

During the convalescent period when Suzie was ambulatory, she ate with one or two other children at a small table. The meal service used pre-operatively was re-instituted. It met her needs more fully. It gave her opportunity to choose, to control her own intake of food and to function independently. It also resulted in a small weight gain.

During the period before Suzie went home, she also used

bath time and play periods to regain autonomy and increased mastery of the experiences she had been through. During the last phase of recuperation—convalescence—she learned to share me with other children and regained the independence in self-care she had achieved before entering the hospital.

The day Suzie went home was a moving experience. Although there must have been times when she wondered if going home were a reality or a myth, she continued to retain hope that the special day for home-going would eventually arrive. How much it meant to her she revealed while being dressed to go home. She looked up at her mother and said, "Don't you think we ought to have some thanksgiving tonight?" The special day she had been anticipating had really arrived.

LIVE OR NOT TO LIVE . . .
with your job

by Gerald Gordon

THE TITLE of this article carries the clear implication that living with one's job is hazardous, but perhaps a more pertinent corollary would be how to live without your job.

While I have a few thoughts on living with one's job, I have no idea how one could live without a job, nor am I sure it would be a kindness to divulge the secret even if I knew. Yet I am aware of a widespread conviction that work, particularly the work of the administrator, is thought of as some kind of an unnatural and harmful activity. Apparently one may expend unlimited physical or mental energy in a hobby without fear, while the same energy expended in useful or productive effort is considered a harmful stress. Work is treated as though it were an imposition upon mankind rather than as a major source of happiness and gratification.

This is not a new notion. After the fall in the Garden of Eden, Adam is told that "in the sweat of thy face thou eat bread." Yet even before his fall, Adam was put "into the Garden of Eden to dress it and keep it." Apparently it is in the nature of things that man should work for his daily bread. We cannot even blame Eve for our problems.

In recent years you in higher echelons may have been admonished that the pace of your lives is killing you. You may have been threatened by such scare statements as "your next promotion may be your last." Others may encourage you to be proud of your ulcer, to wear it as sort of an administrator's "purple heart," as though it were a sign of virtue, of devotion to a cause beyond the call of duty. Gratuitous advice tells you to slow down, take it easy, take longer vacations, don't work so hard.

Many in responsible executive positions are frightened by all this advice and find themselves in a neat trap. Most successful individuals achieved their positions by virtue of hard work and aggressiveness. They have had almost boundless energy to expend and found great satisfaction in the struggle. But now they are beset by social and economic pressures which seem to degrade successful accomplishment and make them appear almost sinners. All sorts of measures and negative incentives are set up to remove temptation and make certain that the sin of success, if not actually punished, is certainly not to be rewarded.

What to do now? Give up? One doesn't run a successful enterprise from a cruise ship. The poor misguided wretch who happens to enjoy work is in an even worse fix for, by implication, to continue is suicide.

In view of these circumstances, it might be useful to re-evaluate some of these conclusions in view of available data. The last half century has seen an increasing extension in man's life span from 48 years in 1900 until it is something over 70 plus today. This extension has taken place during the most productive era this nation has known. Rules of hygiene and nutrition have been learned and implemented; man can manipulate his environment for greater comfort, secur-

ity, and safety than could his forefathers in even one generation past. By accepted concepts, the wear and tear on his body should have become less as he learned to protect himself.

Administrators, having no special claim to immortality, also succumb eventually just as everyone else. Coincidental with the increased span of life, there has been a change in the nature of conditions causing their inevitable departure. The infectious diseases have been replaced by stress diseases or degenerative diseases and cancer. Even children's hospitals report accidents create more admissions than infectious diseases. Obviously something has changed, but 50 years is too short a span for any evolutionary change to have taken place in man himself. Yet these stress diseases are real and have become today's killers. When a noted figure has a heart attack, it is front page news, but aside from the associates, little is known of hundreds of other victims who are stricken on the same day.

Studies in our company (E. I. duPont de Nemours & Co.), comparing the occurrence of stress diseases in the executive group with the occurrence of the same disease entities in the general company population, show almost exactly the same rate of incidence. Other industrial medical authorities have made similar studies and find the executive has no different pattern of disease than the general public.

To understand the nature of stress disease, it might be well to discuss some of the body's basic adaptation and survival mechanisms. The body and mind are completely integrated in the sense that the body supplies the brain and nervous system with nourishment, and the brain and nervous system in turn interpret the needs of the body for survival, implementing coordinated activities to provide for them.

The entire biological process is based on homeostasis: i.e., the maintenance of a fairly constant and healthy state within as the body moves about in an ever-changing external environment filled with threats and hazards to existence. The body becomes aware of its needs through the nervous system.

Survival is made possible by adaptation to an ever-changing external environment. The body is admirably designed for this purpose. It can resist great stresses such as those inflicted by toxic materials, mechanical injury, infecting organisms, or heat and cold, so long as these are compatible with life.

When first exposed to any stress, the body becomes alarmed and over-reacts in a general way. This general reaction is somewhat inefficient in that all parts of the body react when they do not need to. For example, if a sedentary worker is suddenly exposed to the stress of digging a ditch over the week-end, the entire body aches, not only the muscles stressed. If resumed the next day, the work may be a little easier; and if continued thereafter at the same level, certain muscles will grow stronger. Unnecessary side reactions of a general nature will subside and the body will discipline itself into a state of efficient comfortable adaptation. The individual then meets his stress (physical work in this instance) with less effort, greater efficiency and less strain on the body. It is known that psychological or emotional stress operates similarly. The normal individual working under conditions found in modern society for 8 or 10 hours a day, particularly the executive, can hardly be said to be exposed to stresses incompatible with biological existence. It has been pointed out that spending $20,000 is no more difficult a decision for the administrator than is spending $20 for the janitor; by the time individuals become experi-

enced administrators, they should have learned to function efficiently even with the pressure of their jobs.

Yet the reality of stress disease cannot be ignored, for it is one of the great unsolved medical problems. Coronary heart disease, arteriosclerosis, high blood pressure, gastric ulcer, colitis, migraine, allergies, among many others—all are on the suspect list of stress disease.

These diseases are very real and occupy top position in the mortality table. In searching for the causes of stress diseases, we must consider the nature of man's emotions and their place in the economy of his existence. Most men consider emotions a ridiculous weakness worthy only of scorn; the kind of nonsense that makes poor frail women cry apparently for no reason at all. (We fail to note, however, that women in our culture frequently get, or get away with, whatever it was they were crying about.) That strong men should not be bedeviled with emotions is a fixed part of our thinking. Male children are taught that crying is a sign of weakness, that fear leads inevitably to cowardice, and anger to the gallows. Most adults believe that self-pity is almost a cardinal sin and that worry leads inevitably to stomach ulcers. Consequently, emotions are widely conceived as enemies to be conquered at all costs. What then is the purpose of emotions which at best are seemingly useless and at worst harmful?

Nature does not do foolish things; all persons have emotions, and they must have some logical function. Perhaps emotions themselves are not at fault—rather, it is our ignorance of their proper use and function. It is impossible to measure directly the force of emotions. The rapid pulse, the labored breathing, the clenched fist, the punch in the nose—all these are mere manifestations of emotional be-

havior; but they are no more the force of emotion than is the light from a bulb the force of electricity. The light from a bulb is only a manifestation of electricity, which cannot itself be directly detected. So it is with emotions, which are endlessly confused with the external manifestations of emotion. There are occasions when it is necessary to tell someone to stop some form of misbehavior, but our confusion between emotions and behavior leads us to tell the individual to control his temper—or his fears. But these are emotions, the internal flowing of energy. Energy, whether it is electrical or emotional, cannot be destroyed or even prevented. It may be diverted, but will always seek another outlet, for nature demands its release either in useful accomplishment or stress disease.

The four basic phenomena of the nervous system which make it possible for man to adapt to and survive in an ever-changing environment are pain, hunger, fear and rage. Few of us attempt to "will away" pain and hunger—not because we like the discomfort but because we can not nor could not survive without them. However, although the same purpose is served by all four phenomena, man has quite arbitrarily decided that the Creator has made an error by putting fear and anger into him, and that this error he must correct.

The purpose of these four basic biological phenomena is to promote survival by disciplinary control over the body. The pain caused by a cinder in the eye drives us relentlessly to protect our vision by locating and removing the irritation. Hunger, almost always accompanied by aggressiveness, drives us to seek food; fear, to flee; rage, to defend ourselves. There is nothing biologically built into man directing him to either foolish or self-destructive behavior. Nevertheless, any form of energy including emotional, can be compressed to the

point where it becomes dangerous. Natural, free-flowing emotions guide and direct man into healthy survival behavior, always gauged in quality and quantity to the needs of the moment.

During the war, newspapers reported an incident where a plane dropped a live 200 pound bomb on a carrier deck. A sailor rushed over, carried the bomb to the side and threw it overboard, saving his own life and perhaps many more. The next day, when challenged, he couldn't budge a similar but safe bomb. Healthy, natural fear gave him both the courage and the strength to adapt to a dangerous emergency. The human mind and body may be likened to a computing machine which is useless without a power supply. The human power supply is emotion.

A distinction must be made between emotion and behavior. A hard-breathing, red-faced individual, flailing about destructively, is not necessarily undergoing the emotion of anger. Conversely, a pleasant, calm-appearing individual may be in an intense rage, plotting murder. A convincing actor can exhibit any behavior while internally anticipating a pleasant week-end in the country.

Emotions are functionally equivalent to pain. Pain orders all our behavior so that we operate in our own best interest. This is not selfishness in its commonly accepted sense of greed and meanness. It is healthy self-interest to remove a cinder from our eye, and in no way conflicts with the rights or interests of others. Similarly, emotions, by the pressures and tensions they create, tell us to look into our lives, see what's wrong and fix it up. The response is almost always highly personal and defensive, and in no way conflicts with the rights or interests of others. In order to remain physically and mentally healthy, we must accept this control which

nature exercises through our emotions in the same way we must accept pain and hunger.

For every event in our lives there is an accompanying flow of emotion to organize the body to meet our problems correctly. Yet, over and over, my patients tell me that they have no real problems—that the petty irritations in their lives are too trivial to be upset about. They don't seem to realize that if we fail to meet each little problem effectively, there is soon quite a collection of unsolved problems. We do not call on the fire department to put out a match; but if we do not put out each and every match, sooner or later we shall have a real conflagration. On being repressed, all the little increments of emotional energy which accompanied each event accumulate to a considerable feeling of tension, for the danger has become more serious in the aggregate. Nature created man with an automatic fire department, but man in his infinite wisdom has re-organized himself into ineffectiveness. When tension rises high enough, it may begin to seek other outlets through perfectly innocent organs—the stomach, the heart, the blood vessels. This is nature's second line of warning: since we ignore the warning of our emotions, she tries hurting us physically with pain.

At this point the individual is diagnosed as being nervous. He, his family, his friends, his boss, and often his personal physician have one prescription for treatment. The panacea consists of removing him from all unpleasant situations and insisting that he leave work, calm down and rest. One of our most firmly held delusions is that emotional upsets are harmful and that worry is akin to taking poison. I have followed many cases in which people have been removed from more and more responsibilities until they become totally incapacitated and non-productive—in effect, concealed pen-

sioners. A problem cannot be solved by refusing to be aware of it or by evading our responsibility for its resolution.

Our experience indicates that there is very little inherent in the work situation, as such, to cause emotional difficulties. Improper mechanisms, however, are brought into the work place by the sufferer. Usually, they are techniques of avoiding unpleasantness, developed in earliest childhood for dealing with stressful situations. An individual with a high degree of mental health will automatically seek and use effective mechanisms. If an individual finds that things do not work out well for him, he must look within himself; it is rare to find a solution in the external environment. This is a painful process, usually avoided so long as our explanations and excuses for blaming something or someone else are acceptable.

When life becomes difficult, it is only too human to want to get away, but the self-disciplined individual, knowing problems are not solved that way, has the courage to see the struggle through to a resolution. One who habitually evades his responsibilities will repeatedly follow his pattern, but usually maneuvers the circumstances so that someone else has to protect him.

It is not always kindness to encourage this evasion by acting upon the individual's own prescription. It is usually kinder in the long run to handle the situation in such a way that he develops courageous patterns of behavior to displace the pattern of dependency through solving his own problems with the accompanying greater personal security.

Physicians have known for centuries that self-diagnosis is extremely dangerous, and it is particularly true in emotional difficulties, for the very mind needed to diagnose the trouble is itself not functioning efficiently. Consequently, adminis-

trators cannot, and should not accept subordinates' self-diagnosed excuses for failure. They have serious obligations to examine all circumstances surrounding subordinates' shortcomings to eliminate the rare situation in which extreme forces may play a part. Where circumstances indicate that the error lies in an individual's failure to adapt to the realities of the situation, the superior must in all fairness to the man or woman and the organization and himself, exercise his authority to the end that the failing subordinate meets his or her responsibilities with effective personal action.

Administrators who evade their responsibility for informing a subordinate directly, accurately and in a straightforward manner of the facts regarding his performance, in turn create unresolved tensions and stresses in themselves, for their success is dependent upon the performance of their subordinates. One of the most common complaints I hear from employees about their work situation is that they are not clearly informed regarding their job performance. This is vital for all of us to know, for our survival and happiness depends upon our jobs—our bread and butter. Even guaranteed job security when not earned by productive performance will not give us the feelings of security we desire. We may be able to fool society and our bosses and even ourselves about how well we are doing our jobs, but we can delude ourselves only for so long, because Mother Nature will not tolerate it. It profits little to have an unearned pay check if the price of self-deception is heart disease or stomach ulcer.

The common excuse for such failure to meet this basic administrative responsibility is that administrators believe they do not like to hurt others or it is wrong to upset people. What they fail to recognize is that there is no way for anyone to evade his responsibilities for very long. To perform this

unpleasant task we ourselves must first be upset. Since we believe emotional upsets harmful, we attempt to control our upset emotions, thus aborting the drive to action. The end result is an increase in tension of all concerned.

Modern man seems to have forgotten that life is basically a conflict. The maintenance of life itself in the individual is a constant conflict between the body's need to maintain an internal steady state in the face of an ever-changing external environment. So is the struggle for existence among groups and societies. Democrats conflict with Republicans, labor with management—the list could be expanded indefinitely. Whether these conflicts should or should not exist is another question; but it must be recognized that they do exist and are potential dangers. Ignoring the emotional warnings of danger does not remove the danger itself. The full, free life which sometimes includes a good scrap has been negated by a utopian desire for eternal harmony and tranquility. Lacking any realistic way of achieving it, man has developed the tranquilizer pill. Alcohol has long been a partial answer to man's desire for occasional false tranquility, but he knew the price was the next day's hangover. We have not yet learned what the body may have to pay for the tranquility of the tranquilizer.

Individuals who refuse to permit themselves to become emotionally upset about a job situation because, in advance, they presume it to be hopeless, are missing out on solutions which might be forthcoming if they permitted their healthy emotions to motivate their quest.

The other side of the coin shows administrators attempting to do the impossible. There is a widespread belief that management and supervision can and should make all their subordinates happy—not simply provide a healthy atmos-

phere in which they can find their own salvation. It is an impossible task for anyone to make another person happy other than to so conduct himself that he does not unduly interfere with the individual's finding his own salvation. Yet I have talked with administrators and supervisors who were thoroughly frustrated when an employee refused to be happy under their administration and supervision.

There is in this situation a danger for the subordinate as well as for the administrator or supervisor. Creating an atmosphere that tacitly implies that the efforts will make employees happy leads them to expect this miracle. When the efforts fail, employees are bitter and resentful. This is not to say that people do not react to decent, fair, honest treatment, but can we do more? For purposes of emphasis and clarity I have oversimplified, over-drawn and exaggerated. Therefore, do not misconstrue my remarks to mean that people do not occasionally work too hard or need a vacation, or that every problem will have a handy solution if we just get angry enough. People do occasionally need or want a vacation, or want to put aside a knotty problem temporarily, or even get fed up with their jobs and want a change. I am only warning against using any panacea to evade meeting with effective personal action the real problems of our daily lives. I am warning against evading the internal discipline exercised through our emotions by our own biological drive to survive.

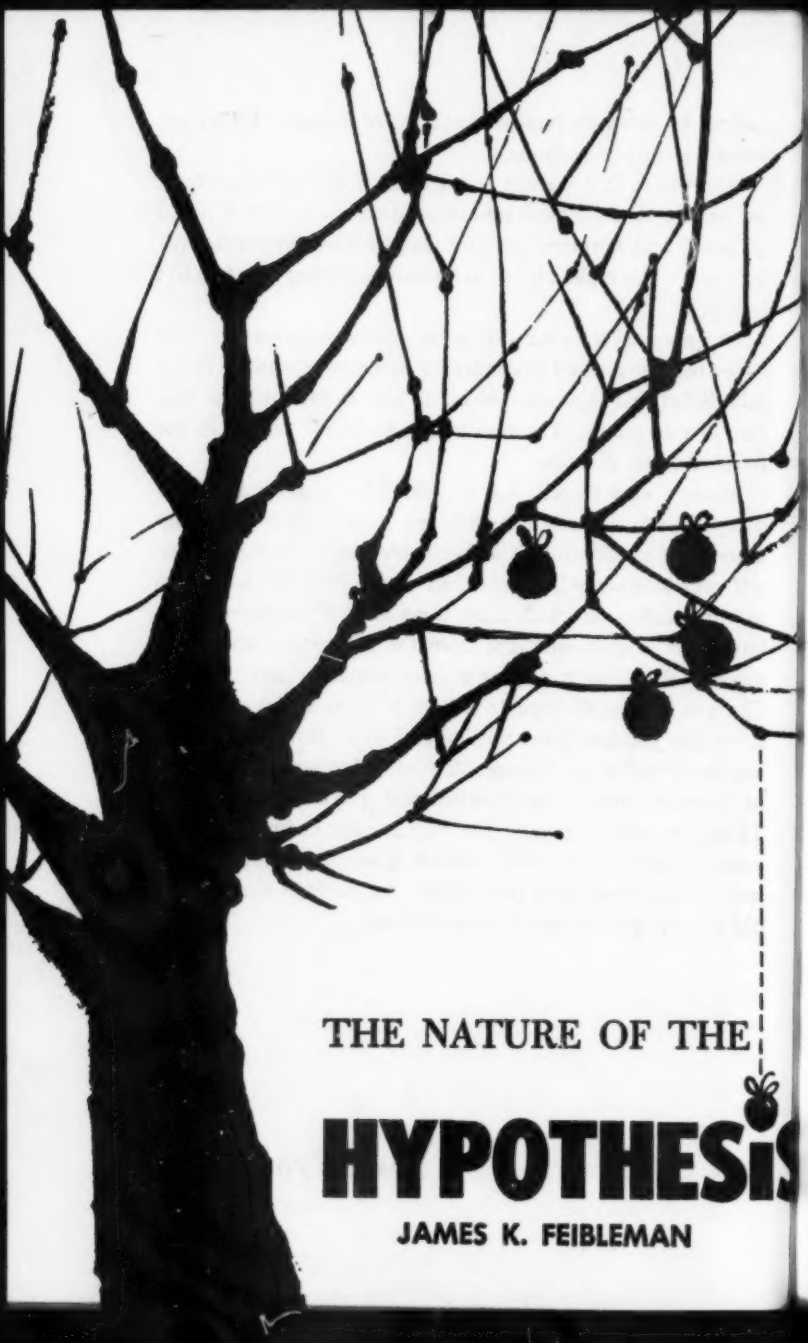
To sum up, then, man brings most of his misfortunes, his failures and stress diseases upon himself by striving to make himself over into something allegedly finer and more nearly perfect than the Creator made him. His own strong, persistent, but delusional beliefs make him act as though he has acomplished it and he either fails to fulfill his normal obli-

gations or demands impossible things of himself. Either extreme is equally hazardous.

We believe that we can free ourselves of anger and fear; we believe that we have powers to create a heavenly world of peace and harmony without conflict here on earth. We believe we can make all our associates, including our families happy.

Our normal elemental drives and motivations—anger, fear—are being repressed to dangerous destructive tensions in the false belief that they are inimical to our welfare and the welfare of our group. The results are, in effect, suicide in the form of stress diseases.

Modern man thereby has sacrificed his identity, freedom, independence, self-reliance and even his courage in the damp laundry of mediocrity. The inevitable failure to make himself over into something less than nature intended leads him into frustration to which there is no end. Frustration of the latter sort is quite different from the frustration which one deliberately seeks in playing a game requiring certain skills. There is reasonable hope (although perhaps a slim one) that some day you can learn to play golf well. But I cannot see any hope within the foreseeable future that you will be able to improve upon your fundamental physiological nature. Therefore, rather than the arbitrary attempt to improve upon your, as yet ill-understood, human nature, you might try to learn more about your true nature, for perhaps the Creator did a better job on you than you believe.



THE NATURE OF THE HYPOTHESIS

JAMES K. FEIBLEMAN

A HYPOTHESIS is a leading question put to nature, a guess designed to suggest the sort of inquiry by which an answer might be reached. It is a proposition which seems to explain observed facts and whose truth is assumed tentatively for the purposes of investigation. The hypothesis is, then, a proposition suspected of being true but lacking the requisite support of evidence, a suggestion that new and necessary relations may exist and should be investigated.

A good hypothesis is one that offers a possible explanation or that ascribes an adequate cause. In other words, a hypothesis is a preconception of what investigation will disclose. It must be a matter about which there is both doubt and some inclination toward belief. No one would try a proposition already convicted on conclusive evidence, and no one would test a proposition whose truth is not doubted. Without the inclination to belief, there would be no disposition to look into the degree of truth of the hypothesis. And without the large element of doubt, the proposition would be a simple matter of belief, not a scientific hypothesis.

The scientific method ordinarily begins with observations and speculations, yet it is only with hypotheses that a line of investigation can be pursued. The success of the method of hypotheses depends upon the delicate balance between conjecture and experience. An investigator will have to construct guesses as to how things are before he can make the observations necessary to determine whether his guesses were correct.

However, much spadework needs to be done before the stage of scientific procedure at which hypotheses enter the picture. No doubt, experiments are conducted without benefit of hypotheses in many instances; yet, only with the hypothesis can a line of investigation be pursued. True, the

sequential steps of the scientific procedure can be followed *inside* the researcher, but it is my opinion they can be followed more logically from *outside*, and that one is engaging in the scientific method only when following an objective procedure.

In this article I propose to define and describe hypotheses; examine their character and criteria by which they are chosen; show occasions on which they are found, the manner of their discovery and how they function.

I personally believe that hypotheses are discovered, not made. But this opinion springs from deep convictions concerning the way the great advances in the experimental sciences have been made, as well as from applications of an elaborate philosophical system which throw considerable light upon problems for me so long as I am not untrue to the facts.

What is the character of the hypothesis?

Every theory or law in science must have begun its career as a hypothesis. Something suggestive in the subject matter compels the framing of a hypothesis as a possible explanation. Thus, to determine the character of a hypothesis, one needs only to read back from a theory or law to its more tentative formulation. Of course, the formulation may have become more abstract and precise; experimental and mathematical evidence may have strengthened its claim to truth; it may even have achieved mathematical expression. But what has changed radically as it has moved from the status of hypothesis to that of theory and then to that of law is the increased support it receives.

A hypothesis, then, represents a temporary state between two conditions—rejection or acceptance. No hypothesis is intended to remain a hypothesis forever. It cannot occupy

a permanent slot in a science as a hypothesis. It is a proposition on trial until it is confirmed or disallowed. Then it will be either elevated to the status of theory and passed along to another type of consideration or dismisssed as false and unworthy of further consideration in any connection.

How are hypotheses classified?

Besides being tentative, hypotheses are heuristic; that is, they stimulate investigation. They may suppose: *generalizations* not yet tested or otherwise investigated; *entities* not yet observed or isolated; *processes* not yet observed or isolated; and posit *ideals* in terms of which specific inquiries can be conducted. This is a rough classification, incorporating a certain amount of unavoidable overlapping.

The generalization is the kind of hypothesis investigators most commonly have in mind. It is usually a statement about a universal kind of situation, expressed, perhaps, as an unchanging relationship between variables or as a set of conditions. As an example, the first proposal that perhaps epithelial tissue is constituted chiefly of keratins did not mean that they were to be found in *some* instances in the epidermal layer of skin. It meant rather that the keratins are the chief ingredient in *all* epidermal layers of skin and in *all* horn, nails, feathers and hooves. A hypothesis is a guide to a fresh viewpoint, to novel observations and original experiments.

Entities which have not been observed but whose existence is assumed are quite common in science. They are to be found in physics among the subatomic particles, many of which were inferred before they were experimentally demonstrated. The recent discovery of a negative particle, the antiproton, has led to further speculations in the same direc-

tion. The supposition, for instance, that corresponding to every physical particle there may be an antiparticle and that there may even be such a thing as antimatter has led to the production experimentally of antiprotons and antineutrons. On the other hand, the entities proposed by Freud—the "ego," the "superego," and the "id"—have never been observed, but they have aided in the understanding of the unconscious.

What is true of entities is also true of processes; they may be hypothetical and unobserved, yet a great aid to explanation. The biological process of maturation and the economic operation of "conspicuous waste" are of such a nature.

Supposed properties not yet observed or isolated may, when investigated, lead to new knowledge. William Gilbert, in the sixteenth century, experimented with magnets and observed that a freely suspended magnetic needle pointed north and south in directions roughly comparable to the geographical poles and that the angle of the magnetic needle dipped through an angle that varied with the latitude when pointed toward the North Pole. From these facts he made an induction to the hypothesis that the earth had the property of an enormous magnet.

A postulated ideal is familiar in the sciences. The scientific "ideal" does not connote anything peculiarly mental. Patterns of perfection set limits; they are models and nothing more. They serve an operational purpose. It often seems necessary to posit ideals in order to investigate actualities; for then standards are provided for measuring degrees of approximation in actual cases. Carnot's conception in 1824 of a theoretically perfect engine which loses no heat by conduction and no work by friction is one of the best-known examples. An ideal elastic is one that would rebound with

undiminished speed after colliding with the walls of its container.

One important characteristic of hypotheses is that they usually extend beyond ordinary observational levels. The senses are aided by instruments, and the results worked over by mathematics. Thus, while hypotheses start from common-sense levels, and may have been suggested by observations of that character, they do not directly refer to those levels but rather to conditions far removed from them. From the astronomical system of Eudoxus in the fourth century B.C., according to which the earth was the center, while the sun, moon and planets revolved around it through concentric crystal spheres, to the mathematical relativity of Einstein in our own day is a story of increasing abstractness. Scientific observation certainly begins at the ordinary common-sense level, but its aim is perfectly abstract mathematical formulation: the representation of empirical statements—statements derived from experience—and presented in logical form. The hypothesis is the first step in this direction; it takes off from familiar data, perhaps, but it does get off the ground.

We have been discussing hypotheses as single generalizations or single entities, but they rarely occur singly. Since hypotheses are discharged so rapidly, every scientist must have a great quantity at his command. And since they must account for the same facts and must share areas of common agreement, they constitute families of explanations. The life-span of a hypothesis may vary from the flicker of an instant to many years. A hypothesis may occur to an investigator in the process of sorting out possible explanations and, because of obvious limitations and inadequacies, be instantly given up. Or one may be announced by him in a technical

journal and then, because of the difficulties confronting its investigation, await years for the decision regarding its final disposition.

What are the proper criteria of good hypotheses?

A good hypothesis is one that offers a possible explanation. This requirement must be broken down into six lesser but more precise statements.

1 A good hypothesis adequately explains the observed facts. The classic example is the hypothesis of gravitation—suggested to Newton in 1665 by small objects falling toward the earth and extended by him to account for planets remaining in their orbits. Obviously, if uncovering unexplained facts gives rise to the hypothesis, it must be cast in the form of a principle of explanation.

2 A good hypothesis offers the simplest explanation possible under the circumstances. Economy of explanation is one of the guiding principles of science. Einstein's theory of relativity is simpler than Whitehead's, and so it was chosen.

3 A good hypothesis offers an explanation that is as complex as necessary under the circumstances. It is simply the demand for completeness of explanation; a good hypothesis is broad enough to cover all the observed facts. Newton's theory of gravitation applies to all material bodies.

4 A good hypothesis can be brought into agreement or disagreement with observations. In other words, it is cast in such a form that it lends itself readily to investigation. A theory that the universe has outer limits would be difficult and perhaps impossible ever to verify. Hypotheses which are, by their nature, insusceptible of verification have no place in science. On the other hand, impossibility of veri-

fication is difficult to demonstrate. Not so long ago the proposition that there are craters on the other side of the moon was a favorite example of the unverifiable hypothesis. Now, since the invention of rockets and the firing of the first artificial satellites of the earth, the same proposition has become potentially verifiable.

5 A good hypothesis is strong enough to compel inquiry. It must be sufficiently suggestive so that the investigator will be tempted to try to verify it. He will try if it is the kind of hypothesis that, once verified, would suggest many further experiments. It would be difficult to deny such a claim to Darwin's original hypothesis of the evolution of species by natural selection. Some hypotheses are so provocative that they open up entirely new lines of investigation; these are apt to be tested before others.

6 A good hypothesis extends inquiry. Some hypotheses suggest more than their own immediate confirmation and lead on to investigations beyond the limits of their confirmation. Bernard's hypothesis of 1885 concerning the constancy of the internal environment of the organism was succeeded by Cannon's theory of homeostasis concerning the equilibrium within the body of such indexes as temperature, chemical composition and fluid content.

What are the occasions for hypothesizing?

Hypotheses are never introduced without reason. However, quite diverse occasions function very well as reasons. Quite commonly a hypothesis is developed when problems are encountered which cannot be solved on the basis of existing theories, when unexpected facts turn up which the old, established laws cannot explain. Harvey discovered that the heart deals in a minute or two with as much blood as there

is in the entire body. This suggested to him that, since the heart keeps on pumping, the blood must somehow travel from the arteries to the veins and so back to the heart. A single unexplained fact induced him to discover the hypothesis of the circulation of the blood, which he announced in 1628.

When rival theories are in conflict, a temporary sort of settlement may be reached through some wider hypothesis. Copernicus was confronted with the established Ptolemaic theory that the earth moved. He, therefore, in 1530 proposed the hypothesis that the stars were fixed while the planets in the solar system, including the earth, were in motion.

Experiments may seem to disclose conflicting facts; here, too, resolution through the setting up of a hypothesis is called for. The evidence for light as a stream of particles seems irreconcilable with the evidence for light as a wave phenomenon.

Hypotheses are devised as bridges from the bare facts to an explanatory principle which accounts for them. The hypothesis that there is an essential structure called protoplasm was established to explain the presence of a number of properties, such as irritability, elasticity and viscosity, displayed by living material. The facts or the explanatory principle may fail of establishment to some degree as a result of the reliance of the one upon the other. Either the facts are accepted and the explanatory principle is presumptive, which is the usual case, or the principle is accepted and the facts are inferred. Young's experiments with mutual interference of lights at the turn of this century, with the resultant supposition that light must consist of waves, constitute an example of the former. Freud's principle of an unconscious

mechanism moved by the proposed entities *ego, superego,* and *id* exemplifies the latter. Whichever side the established evidence falls on, the other side will always be presumption.

Hypotheses often are discovered by chance. Curie's finding of radium is now a famous instance. Galvani touched the leg of a frog with a piece of metal entirely by accident. Chance discoveries such as these are possible only to investigators with a broad knowledge in a particular science. A man in one field of inquiry does not accidentally make a discovery in some other. Prolonged preoccupation with a particular subject matter seems to be a much overlooked prerequisite of all chance discoveries. In short, the probability of serendipity or chance discovery is a function of the number of observers and experimenters with deductive training and intense experience in the science. With the number of unknowns in any situation, it would be impossible to rule out chance occurrences, and some of these are bound to be happy occasions. The experimenter cannot foresee everything that might happen, and so he cannot see, either, what might suggest further investigation.

The exploration of practical problems may be the occasion for the discovery of hypotheses in pure science. A significant amount of basic research has come out of industrial laboratories where the solution of problems in applied science was being sought. Much of our knowledge of the carbon compounds issues from the search for patentable products. The practical application of scientific knowledge involves a knowledge of pure science. Hence, expediency, far from driving out principles, requires them. The hypothesis of atomic fusion resulted from efforts to improve the efficacy of the atomic bomb as an instrument of war and of atomic

energy for the practical purposes of a world at peace.

In addition to the occasions mentioned when hypotheses arise, on many other occasions they are not present and do not seem to be needed. Newton's contention that he framed no hypotheses could be interpreted to mean that he did not appeal to explanatory principles far removed from the facts. His careful experiments to show by means of the prism that white light contains all colors only made explicit a proposition which must have implicitly suggested his investigation in a given direction. Then, too, in such cases the various, relatively minor consequences of previously established theories (which were once hypotheses but are no longer) are being worked out. Hypotheses, if successful, lead to operations and experiments which sometimes do not seem to require further hypotheses. But such a situation soons runs its course in consequences both theoretical and practical, and can not continue indefinitely without further stimulation.

How are hypotheses discovered?

There is no inevitable procedure which, once set in motion, must carry the investigator from immersion in the facts of his science to hypotheses. Experience is necessary for the discovery of hypotheses, but it is not a sufficient cause. Often experience leads the investigator nowhere.

Hypotheses may be discovered by induction, which is to say by moving from the particulars of sense experience to general propositions; or they may be discovered by deduction, which reverses the process and moves from general propositions to the particulars of sense experience. The former is by far the more familiar procedure. Laboratory experiments usually suggest inductions; work at the desk is

more likely to produce deductions. Fleming's inference that an antibacterial substance might be the microorganism responsible for contaminating one of the plates on which he was studying mutations among staphylococci is an example of a hypothesis discovered by suggestions from facts. A deductive hypothesis would be, for example, a constructed mathematical model not yet tested against the facts.

A hypothesis induced from one instance is no weaker than the same hypothesis induced from several thousand. A hundred contaminated plates would not have suggested any more to Fleming than did the one which led to the discovery of penicillin. Instances count only when we are trying to support or verify a hypothesis—but this is a different, and a later, kind of induction.

The ideal of science is system. Every science wishes to put its findings in order, and at present all known types of order are deductive. The role of hypotheses is to suggest the missing principles from which statements in agreement with observation can be deduced. A hypothesis and the facts to which it refers stand in the same logical relation as the postulates and deductions of a mathematical system. In choosing a hypothesis, the experimenter is reaching intuitively for something which is to stand in the same relation to the experiments which are to test it as is the relation of a postulate to its deductions: he intends to employ it for purposes of logical exploration.

Accordingly, hypotheses are more often than not inductively discovered, but they are not inductive *by nature*. That is to say, there is nothing about them which requires that they have to be discovered from an examination of facts. Induction refers to the manner in which a proposition is suggested by sense experience; deduction refers to the man-

ner in which a proposition fits into a scheme of propositions. Although the inductive discovery of hypotheses calls upon the rarest of human faculties, imagination, it remains true that hypotheses are intended to fit eventually into a deductive scheme or else to be abandoned as worthless.

Hypotheses, then, are usually the results of induction. But from some broad theory a deduction may be made to a proposition which can be tested for agreement with observation while the theory itself is receiving mathematical treatment in order to demonstrate its consistency. Thus, when hypotheses are arrived at deductively, it is usually further along in the chain of investigation rather than at the beginning. Confirmations of the Einstein theory of relativity continue to be made experimentally, although the mathematical consistency of the theory has long been accepted.

What is the purpose of hypotheses?

The purpose of hypotheses is to lead the investigator to new knowledge; the aim is to move from suggestions which are uncertain to information which is more reliable. Hypotheses are self-liquidating: if they are successful, they remain as hypotheses no longer.

The hypothesis was suggested by facts, and it will be tested by more facts. It is, then, a way of bridging from samples of facts to other samples, usually from small samples to large samples (but never the same samples). Samples of facts are, of course, collections of individual cases. Now the curious thing is that no way has ever been found for getting from individuals to other individuals except by way of a general proposition. Archaeologists excavate stones which can be interpreted as the foundations of a large palace on a site in the southwestern Peloponnesus, and they argue

that this may have belonged to King Nestor of Homeric times. The inference from present-day remains to a former state of glory rests on the general proposition that when buildings are destroyed by fire, their stone foundations survive indefinitely.

Hypotheses, being general propositions, always extend beyond the facts, no matter how large the collection. They are statements about populations indefinitely large and perhaps infinite, and are not limited to any collection, however great. For the rule holds that no number of individual instances will ever exhaust a universal proposition, and a universal proposition is one that can be predicated on indefinitely many.

In the case of hypotheses which pertain to individuals, it is equally true that such hypotheses are not limited to the individuals. For it is *types* of individuals and not the individuals themselves that are being considered and proposed for investigation. The anatomy of a rat would interest few unless what is true of that rat could be assumed true for most rats and perhaps for all. The investigator will not concern himself with or preserve a specific rat, but he will retain what he has learned of the type. Thus the hypothesis suggests new lines of evidence prompted by the investigation of old types, and it helps the scientist to imagine relevant types which he can then devise experiments to discover.

In this fashion a hypothesis tells the investigator what to look for and where. No scientist ever undertook an experiment without having before him some notion, however vague, of what he hoped to find. A "pilot," or exploratory experiment conducted to probe into or sample a range of possibilities constitutes a hypothesis. That it was not formulated clearly and explicitly is no evidence that it was not there.

For why else would the scientist have chosen that experiment rather than some other? Implicit hypotheses, operating as assumptions dimly understood, are still hypotheses. Every theory we entertain and every law upon which we rely began as a hypothesis at some point in its development.

Of course, the fate of most hypotheses is to be investigated and rejected. Therefore, it is essential to any investigator to have on hand a vast number of them. An able investigator fertilizes his deductive knowledge and technical skill with imagination to produce hypotheses in abundance. One or many may survive the first tests. But often a discredited candidate turns out to have been of some value, for important discoveries often emerge from investigations undertaken to explore a hypothesis which later proved to be false. The hypothesis of the "ether" was one such. As it turned out, there was no evidence for what was supposed to be a kind of immaterial substance capable of transmitting light. Yet it did lead eventually to the special theory of relativity.

THE BIG SLEEP PHILOSOPHY OF HOSPITAL CARE

OR OPERATION MORPHEUS

E. Todd Wheeler

A CHAPTER devoted to the "hospital of the future" is noticeably missing from books and papers on the brave new world of tomorrow. We read about homes and business buildings with no walls or windows; we read about automobiles that will ride on jets of air, we are subjected to long discussions on supermarket shopping by pushbutton; but on the subject of hospitals what we hear seems to come only from those who maintain that the patient room should outdo the latest and most elaborate hotel.

We pay lip-service to the good of the patient, but it often seems that our hospital designs are concerned more with the convenience of doctors and nurses than of patients. This conflict between the interests of patient and staff is regrettable and perhaps unnecessary. There must be some design which

would benefit both groups and, at the same time, reduce the cost of hospital construction and hospital care. I've tagged my proposal for this "The Big Sleep Philosophy of Hospital Care." To set the stage for this new philosophy, let us take a brief look at our approach to hospital planning today.

Fundamental to hospital design is the functional program, which describes the methods of medical and hospital care and the kind and extent of physical facilities required. In my proposed future hospital, the methods may be considered unorthodox, yet they have some basis in science. They presume that life in the hospital is painful and precarious at best and that no amount of garnishment will make it seem like life at home, hotel room or not. Accordingly, why not go to the other extreme and establish an atmosphere both scientific and beneficial to the patient, and, incidentally, one of convenience to hospital staff and personnel? The key to this is a comprehensive use of anesthesia.

For many years the techniques and facilities used in surgery have been designed to expedite the operation, to prevent excessive bleeding, to guard against respiratory failure, to maintain asepsis, to avoid electrostatic discharge, to permit ease of cleaning, to encourage maximum economy of movement in operating, to assure the presence of all supporting materials and devices conceivably needed for surgery, to provide adequate lighting; in short, to provide a safe and efficient place for performing surgery. In the surgical suite the patient is given the most completely objective treatment science has been able to devise. Because of anesthesia, it is not necessary to be concerned with the patient's conscious reactions during the operation. Almost the only concern in this direction has been for the interior color scheme of the operating room and much of this is a concern for eye fatigue

in the surgeon, who has a long day's operating schedule.

The reasons for such extreme objectivity are several. In the first place, the risks to be encountered in surgery are of such a high order as to force every possible precaution and, as a result, the techniques developed over the years are varied and complicated. Secondly, time is an important factor in surgery calling for maximum expediency. Thirdly, the dangers of infection call for maximum precautions. But I suspect the most significant force in this direction is that the patient is anesthetized, unconscious of all that goes on and oblivious to the passage of time. There is relief, therefore, from all the psychological considerations which are so important elsewhere in the hospital. The fact that he is powerless places upon the surgeon and his assistants extreme responsibility for the patient's welfare, but it also gives complete physical control.

The example of surgery suggests the solution to the plan of the future hospital. *It is to anesthetize all patients upon admission to the hospital and to keep them under anesthesia until time for their discharge.* In a trice there are removed all the bothersome, irritating, costly, wasteful and frequently futile efforts we make to keep the patient entertained, comfortable and reasonably happy. Once a patient is asleep he does not care about the size or decor of his room. The temperature and quality of food are of no subjective concern. Sounds, glare, drafts and odors make no difference, and the time of hospitalization is meaningless, at least during his stay.

The patient's release from traditional restraints opens the way for radical design innovations. The most obvious one is to reduce the size of the patient's room from the present wasteful ten feet by twelve feet, or more, to an

economical three feet by four feet. And reduce the height of the room from ten feet to five. Each room can be fully enclosed and its environment under complete control for temperature, radiation, light, air movement, humidity and air content. Because of the small volume included it will be economical to establish and maintain whatever atmospheric condition is best for the patient, including the introduction of oxygen and other gases or vapors; even varying the conditions in a beneficial cycle. Radiant heating, if desirable, is easily and economically attainable. No special lighting will be required but there will be a large number of electrical devices to record and perhaps to regulate the patient's bodily condition. The problem of glare will not exist.

It is thought preferable to maintain the anesthetized patient in a sitting position and the room dimensions were designed with that in mind. Sitting relaxed in a special wheelchair the patient can be fastened comfortably in place, lightly clothed or, if necessary for therapeutic reasons, completely unclothed. Normal body circulation will be aided by the pneumatic action of arm rests, chair back, chair seat and foot rest, all regulated according to the patient's need. Intermittent pulsations of air pressure can also be achieved if necesary. Bathing the patient can be accomplished by compressed air stream or oil spray, and could conceivably be done in the room itself. Food can be provided intravaneously and, in certain cases, where medical condition allows, the water intake can be limited to that amount which can be eliminated by respiration and evaporation from the patient's skin. For this, the controlled atmosphere as well as the fluid intake offers a measure of regulation.

With normal fluid elimination no longer necessary, the problem of human waste is greatly lessened and it is thought

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that further research may reveal ways to limit the patient's intake of solid foods, without loss of energy, so that daily evacuation of solid waste may also be lessened and perhaps even reduced to where it can be oxidized and exhausted by respiration. These two steps alone would be a great boon to hospital operation by eliminating those two medieval items, the bed pan and urinal.

Instruments connected to the patient will fully and continuously record the patient's pulse, temperature, surface evaporation, blood pressure, respiration, muscular activity and metabolism. Undoubtedly many new analytical techniques will be developed of necessity. Dials or charts outside the patient's room will record the findings. When required, electrocardiography and electro-encephalography can be undertaken in the patient's room. Or if the patient can be moved out of his own controlled atmosphere, these and special laboratory tests can be made elsewhere. As for X-ray, much of the work will be done as at present, but it is probable that the use of portable units will increase. It may also be that the quantity of radiographic work will be lessened in the future. In fact, it is not impossible that radiography as we know it will have disappeared by the time this hospital of the future becomes a reality. One major problem presents itself. Today's diagnostic methods lean heavily upon subjective responses including the experience of pain. With the patient anesthetized it will be necessary to develop a pain recording device since the patient will not be able to furnish this subjective symptom. Respiratory and sweat analyses will replace urinalysis.

The automatic recording of patients' conditions suggests several innovations. At the nursing station, there could be warning devices or duplicate recorders. There could be a

central observation room in which the doctors could sit, much as in their stock broker's customers room, watching the big board on which will be recorded all instrument readings on all patients. For the number of patients usually under one doctor's supervision, the task of scanning the dials for significant readings should be no greater than that of any airline pilot. It would even be possible technically to include instruments in the doctor's office remote from the hospital. And all such data could be recorded continuously and automatically for the patient's record. A full set of recording dials could be placed in each patient's room and a duplicate set at each nursing station. There is the obvious, though perhaps immodest application of closed circuit TV to this situation. Privacy will be a matter of regulation of visitors and attendants.

Obviously, modifications of diagnostic and therapeutic techniques will have to accompany the adoption of this new concept of hospital care. If, for example, psychotherapy increases in use, there is no reason why hypnosis cannot be substituted for gas as an anesthesia. Under hypnosis the patient is highly suggestible. Diagnostic techniques depending upon analysis of body wastes will need to be replaced by more accurate analyses of skin and respiratory wastes. Physical therapy will be largely on conscious patients.

And now for the arguments pro and con. The main argument in favor of this philosophy is not one of economics, as you might suspect, but is rather that the method relieves the patient of all physical and mental burdens encountered in maintaining the normal essential body functions, thus leaving his physical resources free to offer a maximum of resistance to disease. We do not force a patient with heart trouble to climb a mountain. We do not subject a patient

with glaucoma to the glare of auto headlights. Then, why should any patient, whose normal protective and recuperative functions are fighting the heavy force of disease, be asked to bear even the normal burden of body operation at the same time? If going to bed is beneficial to most patients, why not going to sleep as well? This is the humane argument.

There are, of course, economic advantages in this proposal. The existing important departments of food service and laundry could be practically eliminated, and many other departments lessened in size. The operating costs of nursing care, of the supporting services already mentioned, of building maintenance and housekeeping, could be greatly decreased. The reduction of space required could also make a considerable difference in capital costs which, in turn, might reduce operating costs. As an illustration of this, we have calculated the gross floor area required for the hospital of tomorrow in contrast with that of today. The space suggested for today's hospital represents a modest but not impossible standard for a 200-bed hospital.

In these projections it has been assumed that the surgery and delivery suites will continue as they are plus some expansion of surgery to account for the extra load on anesthesiology. However, if chemotherapy gradually replaces surgery, there may be reductions in the surgical suite. On the other hand, the development of hypothermia and expansion of rehabilitation could offset this with added space requirements.

The estimated reduction in operating costs is less than that for capital costs, but even a 20 per cent reduction would be significant, and it seems possible that somewhat more might be realized.

Table of Gross Floor Areas Per Department

	Department	Hospital of today		Hospital of tomorrow	
			per bed		per bed
A.	Nursing Departments	63,400	317	40,400	202
	1. Bed Units	54,000	270	30,000	150
	2. Surgery Suite	5,000	25	6,000	30
	3. Delivery Suite	2,400	12	2,400	12
	4. Emergency	2,000	10	2,000	10
B.	Adjunct Diagnostic Facilities	15,400	77	11,400	57
	1. Clinical Laboratory	5,000	25	5,000	25
	2. Radiology	6,000	30	2,000	10
	3. Physical Medicine	3,000	15	3,000	15
	4. Pharmacy	1,400	7	1,400	7
C.	Service Departments	28,000	140	15,600	78
	1. Dietary	7,000	35	1,000	5
	2. Housekeeping & Laundry	5,000	25	3,000	15
	3. Central Sterile Supply	3,000	15	3,000	15
	4. Central General Stores	5,000	25	3,000	15
	5. Employee Facilities	2,000	10	1,600	8
	6. Shops & Mech. Equipt.	6,000	30	4,000	20
D.	Administration	7,600	38	7,600	38
	1. Offices	3,000	15	3,000	15
	2. Public Space	2,000	10	2,000	10
	3. Medical Records	1,600	8	1,600	8
	4. Gift Shop	1,000	5	1,000	5
	TOTALS	114,400	572	75,000	375

If these figures are extended at a total project cost of $30.00 per square foot, the difference becomes significant.

Today's Hospital			
114,400 sq. ft.	$3½ million	$17,500 per bed	100%
Hospital of Tomorrow			
75,000 sq. ft.	$2¼ million	$11,250 per bed	64%
Difference 39,400 sq. ft.	1¼ million	6,250 per bed	36%

On the negative side, there are many arguments against this proposal. They fall generally into three categories: First, the proposal is based upon numerous unscientific assumptions with respect to the human body. Second, the method

would be so frightening to the patient that it would outweigh any possible advantages. Third, the proposal violates our humanitarian concepts well beyond any possible acceptance. Many of these objections are admitted, yet they do not seem insurmountable.

My answer to the first group of objections is categorical. I would hope that the medical profession would intensify, not lessen the process by which medical science helps the patient recover from disease. Accordingly, the techniques suggested here should be extended only as far as medical knowledge allows. If, for example, the known general anesthetics are dangerous or harmful when their use is protracted, other kinds might be developed, or instead, drugs could be used or hypnosis, cold, heat, radiation, or who knows what? If the suggestions as to the patient's intake and output exceed the bounds of human physiology, obviously some point short of the extreme described will become the practical experimental limit. But there might be some profitable experimentation even in these fields.

As to the second category of objections relating to fear, my answer is specific. Patients presently undergo anesthesia with its attendant and admitted fear of death while unconscious because that fear is less than the known, or feared prospect of intense pain, and also because the surgeon knows that this operation might well be jeopardized by the movement and cries of an unanesthetized patient. Patients will accept sedatives for medical reasons. They will probably accept anesthesia for reasons other than surgery if the doctor prescribes it, and especially if those reasons appear more compelling to them than the fear of going to sleep and not awakening. I believe these objections can be overcome by education, by freely allowed choice and by

demonstration of the use of these concepts in hospitals.

The third category of objections—social resistance—will be more difficult to overcome; yet this, too, is susceptible to reason and trial. Because we are convinced that the doctor's care is truly for the benefit of the patient we accept many social compromises today. Then it should be possible with further education, for us to accept the proposed technique as a beneficial means to a humanitarian end. There is no reason to think that the helplessness of the patient under anesthesia would be abused any more than is now true of patients asleep or in a coma. Once the method is accepted, then the concomitant small room and multiple electrical recording devices, which are the seemingly inhumane elements of this proposal, become of secondary importance—as acceptable as the present aseptic surgical techniques of scrubbing, masking, gowning, gloving, and draping the patient beyond recognition.

I do not dismiss lightly these real obstacles, but I do think that the proposal does no more than to extend the known and accepted methods of medical and hospital care a few steps further toward a more scientific and even more organic hospital.

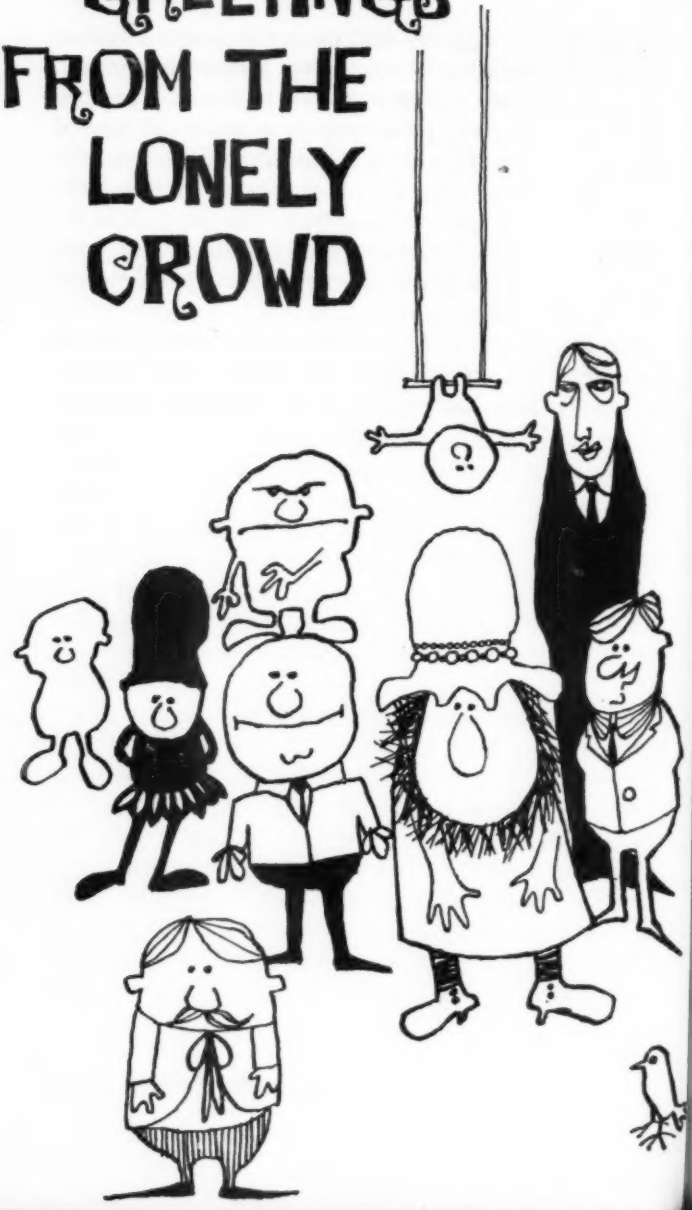
How can the complicated housing and recording mechanism here described be compared to an organism? By a slight stretch of the imagination it can be made to seem more nearly organic than the present "humane" hospital. The human body within itself contains no less complete atmospheric controls than are proposed for the patient's room. It is much more complex in fact. The body uses sleep as a means of assuring regeneration, and this is all that is proposed here. The central nervous system controls are a thousand times more complex than the system of re-

cording devices suggested, and the human body's intake of energy and disposition of waste is not violated, in principle, by my suggestions, though it may be in degree. The body glands react to social pressures even as would the hospital management. Far from being mechanistic and inhuman, this proposal is more nearly organic than what we now have.

And as to the spirit of the patient, if he has faith in the ministrations of his caretakers, and of forces beyond them, he should be no less healed in spirit by the suggested method than by the present ones.

Yet it is obvious this is something to be tried and not an established fact, something to be thought about but not necessarily done. But wouldn't it be interesting to try it?

GREETINGS FROM THE LONELY CROWD



HAVE YOU tried lately to select a "greeting card" that expresses affection, concern or congratulations? If so, you doubtless have been shocked by the row upon row of hostile, belittling, derogating cards with which you were confronted. Not only the nation's best department stores, stationery stores and drug stores but also hospital gift shops display these so-called "sick" cards in quantity. If you have rejected these cards as inappropriate for the expression of your sentiments, you have probably found a clerk who, while communicating her annoyance with your lack of sophistication, will dig into the bottom drawer to find a few sentimental or "corny" cards for your perusal.

The author, who is concerned not only with the attitudes of nurses but with those of society about illness and patients, did an informal survey of these greeting cards in terms of the messages they communicate to patients and the needs and feelings that healthy people in our society have for those people who, for a moment in time, have taken on the role of patient.

The first question to be answered by this survey was: What are the messages communicated to patients about their sick role by currently popular "sick" get-well cards? A sec-

by Catherine M. Norris

ond question was: Are these communications comforting and supportive or alienating and destructive?

One purpose of the survey was to provide information that could be used by nurses in identifying and agreeing on modes of intervention if destructive and alienating themes were identified. Another purpose of the survey was to reduce the anxiety of the investigator by collecting data which would support or refute her perception of society's changing attitudes toward the sick role.

There was little found in the literature under the subject headings of greeting cards, sick cards, studio cards, humorous cards or witty cards. Two fairly relevant newspaper sources were found, however. One article appearing in the *Chicago Daily News* on August 15, 1961, was written by a woman columnist, Inez Robb, who says, "The present sick, sick, sick trend is obviously a giant step beyond the 'drop dead' greetings that suddenly took over the card business five or six years ago. . . . Many of them were pretty far out and some on the ghastly side. They belonged to the instant insult school. But where 'drop dead' lacked taste, the present school lacks decency."

The second article appeared in an Eastern newspaper in 1958. It had to do with a letter sent to the paper. The correspondent, during a time of illness, had received a sympathetic letter from a friend and was indignant because the friend who had written the letter "was too cheap to buy a card." This has little to do with the present study but it does express an acceptance of a card and its cost to the sender as symbolic of concern and an inability to understand an expression of real concern from one who takes the time to search his heart and put his feelings into words on paper.

The investigator purchased all of the "sick" greeting cards intended for patients that were on display in the largest department store in Chicago, in one stationery store, in one drug store and those on display in the gift shop of a well-known hospital. This was considered a representative sample. To allow for a small digression, all of the cards purchased cost twenty-five cents or more. It was noticed that old fashioned or sentimental cards could be purchased at these same sources for as little as ten or fifteen cents. It might be generalized that it is cheaper to express love than derogation or that there is more prestige and status to cards expressing derogation than cards expressing love.

The number of cards in the sample which constitute the data of this survey was one hundred and nine. Five nurses with preparation in psychiatric nursing constituting a jury were asked to sort the total number of cards, grouping together those that expressed similar ideas. Each juror worked alone and was instructed to sort the cards according to the themes expressed by the cards. Secondly, each juror was instructed to identify the theme expressed by the cards in each group. There was 100 per cent agreement among the jurors. All the cards except one sorted into five piles. The one left over was intended for the mother and father of a new baby. The message said, "We hear you had a baby. What happened?" This one, the only card in the group for "greeting" new parents, stopped the investigator cold, too. Did this card say, "We didn't think you were able?" "We didn't think you knew how." or "Did your family planning go awry?" If there was some sentiment involved it didn't get through to the five nurses or the investigator. In fact, we felt that this card could be offensive to the religious beliefs of a large group of patients.

The five themes communicated to patients by these cards as identified by the jury were:

Forty-one cards communicated, "I derogate you as a patient." Typical of the messages on these cards were:

A picture of a gun labeled, "for bad head colds" and a picture of a bottle labeled, "sand blast throat spray," with the caption, "If it helps you get well send me one."

"An Accident? Wouldn't that fracture ya?"

"So you're better? Better than what?"

A card covered with pictures of pills and capsules with the caption, "This card is full of vitamins! Eat it."

"At least one other person misses you since you've been sick—Your Bartender."

"Heard you were out of sorts lately so I rushed to the drug store and they were out of them too."

Twenty-three cards expressed the theme: "I hope you die." Typical of the messages in this group were:

A short, fat man, fitting one stereotype of psychologist, says, "I believe in reverse psychology. Don't get well."

A hefty, hennaed lady, holding a wreath, simpers, "I'm really thrilled to hear that you are getting better except for one thing. The lady said I couldn't return the wreath."

"I wanted to send you one of those funny get-well cards but then I thought how it would look when they went through your things."

"Cheer up. I hear they're trying a new drug on you—the guinea pigs kept dying."

"Cheer up. Have faith and look for that silver lining. General Custer had faith."

Twenty cards expressed the theme: "You are not really sick or at least, not as badly off as me." Messages on greeting cards substantiating this theme were:

"Get well soon. What do you think—You're sick or something?"

"Why should I be sorry you're sick. You still look better than I do."

"Your doctor told me you're sick because of late hours, drinking, wild parties, strenuous cha-chas and other carrying on. Move over."

"This morning when I woke up, I felt like stepping into an old pair of overalls, eating a big plate of bacon, eggs and hot cakes, hitching up a good strong mare and striding out into the sunshine and plowing up the west forty. And you think you're sick!"

"I should really visit instead of just sending you this get-well card but being around sick people depresses me."

Seventeen cards expressed the theme: "Don't think about yourself, cheer up, don't worry, forget about it." Variations of this theme were expressed in the following ways:

"Lose something? Cheer up, maybe you'll grow another."

"Under the weather, eh? Into each life some rain must fall—as you've been finding out but knowin' that it's sure to stop, let it bounce off your roof."

"Cheer up, Sweetie.... Even when you're sick you're Sexy."

"Feel run down? Here's something to wind you up." (A key is pasted to the card.)

Six cards expressed the theme: "I don't have time to think about you; there are things more pleasant or more important." Messages expressing this theme were:

"Get well quick. Your work is piling up."

"Sorry you're sick and I hate to make you worse, but you missed the best sale at Macy's."

"Don't get well too quick. We're planning to hold a big get-well party—at YOUR house next week-end."

"You're missing out on a lot of fun while you're sick. Like yesterday, we went out and fed the pigeons—to the lions."

The human figures and colors used in the design of these cards produce a rather weird effect. The men are often black, purple or green with a lean and hungry look or short, fat and squat with a stuffed and stupid look. The women, with inane or simpering faces, are often bizarrely dressed, or blowzy in appearance. Much of the communication on these greeting cards is made by animals such as skunks, dogs, geese, parrots, or turtles.

Nurses and other members of the health disciplines have focused on the humanitarian, idealistic concepts of service to patients. For many members of the health disciplines, nursing has been considered in an almost religious context based on service to others. Nurses from their earliest history have responded with zeal and feelings of responsibility to conditions of illness, pain and discomfort. Young nurses are imbued with ideals of not only the science but the art of nursing. These concepts suggest that to ease the suffering, lighten pain, and to comfort the fearful are among the highest values of the profession and the least that a suffering patient deserves. In other words, for many nurses, because they have a reverence for human life and respect for every man, patient need is the *raison d'être*.

An analysis of these cards clearly indicates that some in our society mock, taunt, and scoff at people in the sick role. Do these cards and their communications express unconscious contempt for weakness and fear of helplessness that each of us to some degree feels? If so, we must concern ourselves with the contrast to the patient role to which we, as nurses, are committed. Can we look at this emerging concept of patient role with anything but concern and disbelief?

One might interpret the sick humor in greeting cards as saying that our American culture doesn't encourage the communication of real feelings. It encourages a certain shyness or reticence that says, "Cover it up with a laugh." It encourages a kind of stoicism which says, "If your heart is breaking, remember, the show must go on." Humor is one of the easiest ways to cover real feelings and these cards seem to attempt humor.

Despite the identification of derogatory and alienating messages, it is fairly safe to say that the person who sends a humorous card is a person who *is* concerned—not only concerned, but he may be feeling as helpless as he can really feel. He doesn't know how to express his feelings except in this bizarre and ridiculous way. Or the sender of this kind of greeting card may be sending another message which says, "I hope you are not really ill, therefore, this lighthearted card is appropriate—I hope, I HOPE, I HOPE." This interpretation may help the patient understand and forgive the sender but, if we are practical, we have to remember that we do not have a psychiatrist around to interpret each card received by each patient nor should it be the patient's burden to have to try to understand the sender. We have until now held that the well should try to understand the sick. If a role reversal is on the horizon, it is not going to be recommended as an outcome of this study.

Another idea that may be worth exploring in this area is whether experiences of patients in hospitals or in other contexts have been so overwhelming that once having had such an experience a person cannot bear to allow himself to re-experience the event to the degree where he can feel with another person who is sick. It is understandable that if a patient is left alone with stress, with pain, with fear or

with the unknown that he could be quite overwhelmed and never be able to recall the experience without extreme anxiety and fright. He may have been so overwhelmed that he has to deny that he was ever very sick or may even have to deny that certain events in his illness ever happened, for to remember or relive them would cause intolerable anxiety. One could understand some of these "sick" greeting cards as anger against the hospital displaced on one of its temporary residents. Or, if the former patient feels guilty about the way he handled his problems in the hospital or feels that he was weak when he should have been strong, he may have to derogate everyone who is weak and ill since he would dislike and respond to that in others which he so despises in himself.

A second concept of patient role with which most of us have a nodding acquaintance has been described by social scientists who study what happens to patients in hospitals. We as nurses, have not always recognized or admitted openly this second role which is structured in the process of organization of services and the application of modern technology to hospital operation.

We read few social science studies about hospitals before we have some clues to our *real* versus *ideal* concept of patient role. In practice, the patient does not receive individualized, loving care since he is often cared for by as many as twenty-five to thirty people a day. These are comparatively short contacts and some people don't even take the time to introduce themselves. We expect, write the social scientists, the patient to learn to conform to a patient role. He must learn what prerogatives he loses when coming to the hospital and to accept this loss whether it is in terms of external symbols

like clothes, papers and valuables or in terms of privacy and independence. He learns the rules under which he must function and the ways he must behave to get what he deems his fair share of attention. He learns what he may question and what he must never question. The onus of responsibility for getting along in the hospital is on the patient. If he does not learn the role, he may be labeled, "uncooperative, attention-getting, overdemanding," or "having no insight into his problems." He learns that to receive all the rewards that nursing and medicine have to offer, he must be compliant with doctors and nurses and be brave in such adversities as pain or a dreaded diagnosis.

In this limited study we have evidently identified a *third* patient role which is being communicated by society to and about patients. This role is considerably different from the concept taught in the art, science and ideals of nursing. However, we are familiar with the studies of social scientists and attacks by the general public that imply that nursing's needs and the needs of hospital organization get in the way of fulfilling our ideals. In nursing service and education, we are constantly trying to intervene in the stereotype of the "good patient" to allow for interpersonal closeness, individual differences, greater patient responsibility and greater autonomy. We labor to teach the bases for respect, understanding and compassion, but do we need to intervene on a broader base than that of hospital organization? If the five themes identified have any validity as an emerging cultural value, we do.

Additional studies need to be done on these destructive and alienating themes before we can, with conviction, say they are themes. We need to study how many of these cards patients receive and their responses to these cards. We need

to find other variables to study and other ways to study society's attitudes and feeling about illness and all that illness implies.

If these themes have validity, nursing can help prevent the patient being left more alone by society than he already is. In the last analysis, pain, deformity, loss of a body part, or dysfunction must be dealt with alone. But it does not hold that patients should be totally alone, deprived of concern, tenderness, of sharing what can be shared or of support and other helpful experiences which, needless to say, must be of an interpersonal nature. If "sick" greeting cards are found to be harmful to patients and express views unuseful to the society as a whole, we in nursing, are in key positions to take constructive action. First, we could eliminate these travesties against the ill from hospital gift shops and we could protest to the greeting card manufacturers. If sales are affected by professional disapproval, the greeting card industry will see the error of continuing this trend.

We could create a change in the attitudes of the citizenry about illness and its role with sick people. If we believe that suffering provides but another dimension to developing depth in the life experience, as do grief, comfort and joy in their turn; if we believe that illness provides many useful learning experiences, not the least of which, is learning that others are concerned and will help; if we believe that the experience of being ill can be useful in terms of developing skills and capacities with which to deal with other life problems that always increase as one lives on and adds new dimensions to one's life; if we believe that each person needs, one day, to face illness with some degree of courage and integrity, then, a half million of us at work could effect a change in values about illness.

The significance of the designation "profession," and the nature of the responsibilities professional people must bear

The Professions AND PROFESSIONAL PEOPLE

by Ward Darley

DICTIONARIES and encyclopedias are not very helpful in providing a meaningful definition of the concept of the "professional person." Popular usage of the designation "professional" contributes to the difficulty of definition because nearly every walk of life now proclaims itself to be professional. Today the term "professional" includes not only such ancient professions as theology, law, and medicine but also nursing, teaching, engineering, business and even athletics. In common usage the word "professional" is applied indiscriminately and often means nothing more than the opposite of "amateur."

To me, however, the truly professional person is one, who, by virtue of intellectual capacity, education and moral outlook, is capable of the exercise of intellectual and moral judgment at a high level of responsibility. My entire concept of the word "profession" is anchored to the word "judgment." Judgment is an art, and the professional person of whom I speak practices his art on the basis of broad knowledge, penetrating wisdom and great moral certitude. He can-

not depend alone upon rules, regulations and formulae for guidance in the formulation of his judgment. He is not just a technician. The technician's task is to accumulate data and information.

The professional person is distinguished from the technician by his ability to judge the validity of data and information and to determine their significance in relation to an immediate problem at hand. The professional person by the nature of these qualifications would be able to deal effectively with any situation which confronts him, no matter how unusual, complicated or unexpected. Working with unknown and unpredictable quantities is the rule rather than the exception in professional work. The physician, the lawyer, the minister, the nurse and the teacher deal constantly with problems that arise out of the differences between people and the vagaries of human situations; the scientist and engineer with the adaptation of our physical world to varying human and social desires and needs; and the businessman with the constantly shifting balances between economic supply and demand.

The kind of judgment which the professional person exercises cannot be standardized and, therefore, cannot be regulated effectively by any authority outside of the person. Herein lies the ultimate responsibility of the real professional. For while society, in general, and one's professional group, in particular, may lay down codes of ethics, rules, regulations, and standards regarding the conduct of professional practice, the truly effective and satisfying professional performance will depend upon standards that must be far higher—those standards which the individual sets for himself. Those of you who have gone into active professional practice all know what I mean. You quickly learned that it is easier to con-

duct your practice in conformity with the general demands of society than it is to satisfy yourselves that your judgments always represent the best of which you are capable. Success in your profession cannot be measured in dollars nor in any other quantitative term; success can be measured only in terms of clear conscience and peace of mind.

One prime responsibility of the professional person is to avoid the pitfall of ignorance. Progress being made in all professional areas is such that competence, in a very great part, must depend upon continuous effort to keep abreast of new knowledge and new concepts. This is not unreasonable for, unless your education has resulted in your having a restless curiosity combined with the habits and methods of continuous learning, you are not fitted to enter a professional career. It is only through the increasing wisdom that comes from continued study and thought, and through continued self-scrutiny and self-criticism, that the experience of professional work can be translated into an ability to make judgments that will grow steadily more mature and more effective. To me the word "professional" implies a highly individualized, highly personalized, type of service. The implication here is a service that will vary according to the server's capacities, abilities and ideals of quality. It is a type of service that must be measured against standards that are not limited by standardization. I say this because to me the word "standard" means a goal that is as high as the mind can conceive—it is an ideal. The ideal goal may never be attained, but in the striving for it, the final accomplishment will be greater than could otherwise be the case. On the other hand, when the idea of standardization enters into the setting of goals, we immediately provide for limitations beyond which no one is encouraged to go. Standardization itself becomes

the goal, and, since individuals vary in their capacity to achieve, the standard is brought down to the level of the capacity of those who can achieve the least. Thus the incentive for variation in the direction of a better-than-average performance is at once removed. If professional work should become so standardized, the ideals and concepts that I have attempted to outline will be meaningless. And I believe that there are trends in modern life that are threatening these ideals. These threats are the kind that favor the standardization and impersonalization of professional service.

The first of these threats comes from our industrialization. Whether we are conscious of it or not, the effects of industrialization are causing fundamental changes in our ways of thinking and doing. The principal features of modern industrial life are mechanization, the assembly-line method, mass production and standardization. And now the age of automation, when machines will more than ever replace human brains as well as hands, is upon us.

All of this means that in industry and manufacturing the trend will continue toward the standardization of method and product. To me, standardization in the realm of industry and manufacturing has a two-fold meaning. In the first place, it means that a wealth of low-cost, time- and labor-saving products and devices have been made available to nearly all of our people. This has meant a rising standard of our material living. And with this rising standard of material living we now have the opportunity, the time and money to improve our standards of spiritual, cultural and intellectual living. I think that if we fail to take advantage of this opportunity to improve our spiritual, cultural and intellectual well being, we face the threat of a second, less fortunate result of standardization and mass production. This

second result involves the danger that the same pressures and complexities that favor standardization and impersonalization in our industrial development may also tend to standardize and impersonalize social organization and human behavior. To some extent I fear that this is already being reflected in the professions. Here the trend is ever toward the use of machines and technicians, the delegation and dilution of responsibility by the use of specialists and consultants, and the creation of the kinds of super-organization that are peculiar to the industrial establishment. The further this trend goes the more professional service, like machine-manufactured objects, will tend to become standardized and to lose significance in terms of human skill and artistry.

Are we moving toward the time when the people responsible for all types of professional service will be nothing more than managers acting by set rules, patterns, guides, statistical tables and calculating machines? Is the time coming when the conduct of human affairs will fully yield to standardization, regimentation and automation? If these questions are to be answered in the affirmative, I believe that the result will be a complete dulling and stifling of the motivation, creativity and judgment essential to effective and satisfying professional work. I hope that as mechanization and automation continue to develop—and develop they will —our people, particularly our professional people, will bear in mind that human beings will still be human beings and that in the field of human service there can be no acceptable substitute for human intelligence and understanding and for the human voice and the human touch.

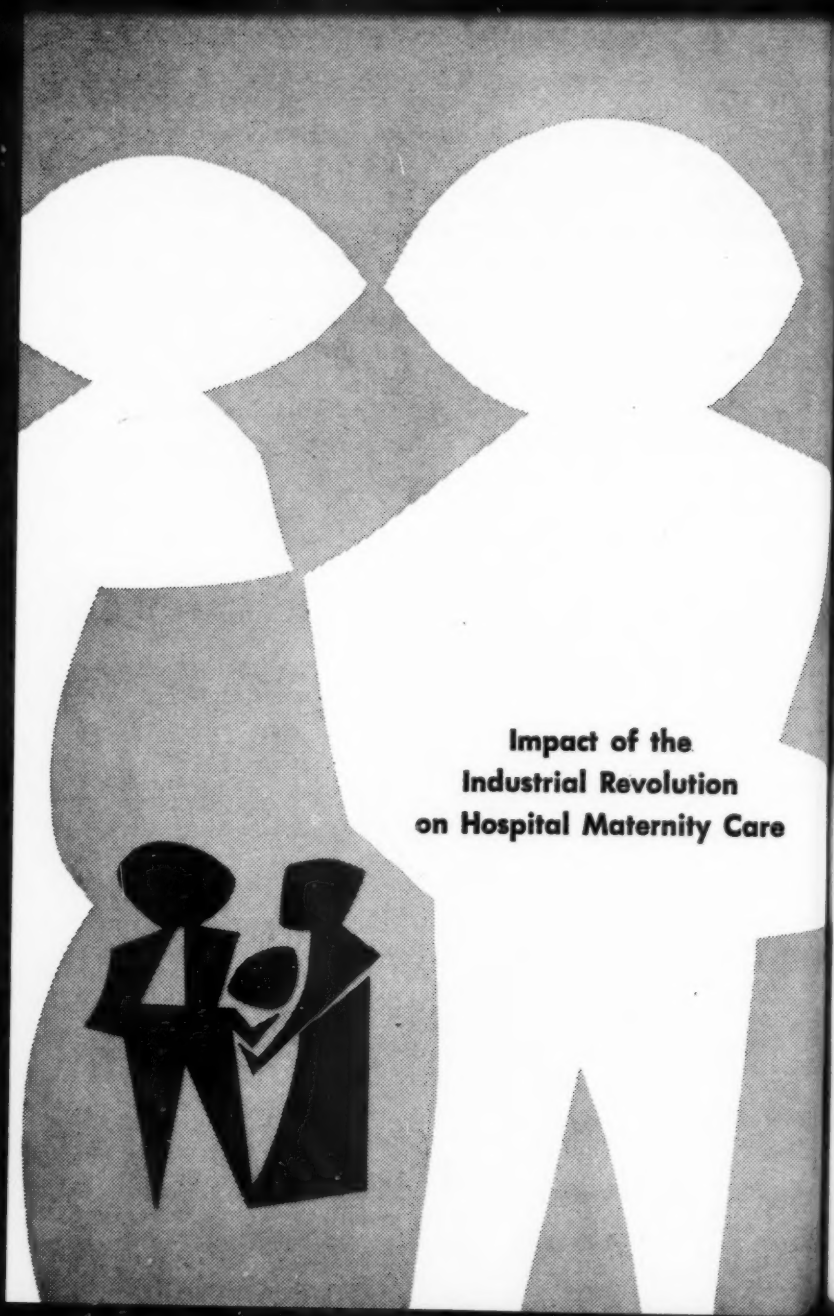
I think there is a second influence that is favoring the standardization of professional service. This is the tendency among professional people to let those in control of their

professional organizations do their thinking and acting for them on issues social and political. Historically those who practice a given profession have always banded together in societies and associations for the purposes of discussion, study and mutual aid aimed at improving the effectiveness of their art. However, in a modern democratic society such as ours, where political power is manipulated through political majorities, there has been an increasing tendency for professional groups to attempt to organize as "common fronts" in the interest of their own political and economic protection as well as for what they consider the political and economic protection of the individual and public they serve. And in doing this, the organization, through both direct and indirect pressures, often demands that the individual professional person conform to its policies and actions.

Now it seems to me that in any sizeable group, particularly in a group of individuals supposedly educated to think and act for themselves, there can rarely be unanimity on a question of political or social importance. Yet I am sure that there are many times when professional people yield to group pressures and conform to the viewpoint of the majority in order that the profession may present a common front. In a human society, cooperation and conformity are two very different things: Cooperation implies a rational resolution of diverse opinions. Conformity implies standardization which may be a response to reason or again may be a response to ignorance, apathy, fear or the desire for approbation or applause. When a professional person fails to inform himself of the facts on a social or political question and to think and act accordingly, when he submits to the will of the group against his inner judgment, he is sacrificing that independence

and individual integrity which to me is the essence of being professional.

If this general thesis is correct, I believe that as professional people continue to join together in societies and associations, the individual members of a profession must resolve within themselves to apply the same criteria to the judgment of social and political questions of a purely professional nature. Otherwise, the ideals and values of professional service—human understanding, creative thinking and sound judgment—will fall before the pressures of impersonalization, conformity and standardization.


Impact of the
Industrial Revolution
on Hospital Maternity Care

HOWARD E. WOODEN

ONE OF THE KEY forces which operated historically to determine many aspects of modern society as a whole, and hospital practice in particular, was the Industrial Revolution.[1] In a general sense, contemporary progress as well as much of contemporary social dilemma may be attributed to the Industrial Revolution.

From a socio-economic standpoint, the Industrial Revolution began at the moment the home was replaced by the factory as the basic social unit of industrial production. All-embracing changes followed thereafter.

Development of the factory system meant a concentration of factories in cities and towns and, in time, created slums. These, in turn, accentuated already menacing problems in community health. The shift from the home as the center of economic productivity meant ultimate alteration in the fundamental pattern of family relationships, inviting a barrage of changes in the role of the woman. With the *non-family-centered* approach to production, new management techniques more appropriate to the mass orientation of the factory were developed. These conclusively demonstrated the heretofore untapped potential of human collective productivity, thereby enhancing total societal contribution of industry but simultaneously depersonalizing the individual

1 For the introductory purposes of this discussion and for the sake of simplicity, it will be convenient to distinguish two phases of the Industrial Revolution according to the predominant source of power used for manufacturing: the first phase, from c. 1770 to c. 1870, which was characterized by the use of steam as the chief power source; and the second phase, from c. 1870 to the present, which makes use principally of oil and electricity. From this standpoint, the contemporary world seems definitely to have embarked upon a third phase in which atomic power is likely to come to replace other sources. In the broadest sense, this chronological division is, of course, inadequate since it does not distinguish the related and perhaps more important scientific and social phenomena involved.

producer. Finally, with the alliance of industry with 19th Century science (of which the Industrial Revolution was itself but a particular off-shoot), the groundwork was laid for laboratory medicine and related scientific approaches which projected those advancements upon which the health achievements of the present generation have been built.

19th Century health needs in relation to the Industrial Revolution

It is suggested that the social and health practices which prevailed during the late 19th and early 20th Centuries cannot be divorced from the concomitant changes introduced by the Industrial Revolution. Death of mothers from puerperal sepsis was common. Communicable and infectious diseases, already widespread, were now intensified by crowded living conditions and poor sanitary conditions which resulted in deaths among children of all ages, including a high percentage of newborns. Lack of pasteurization of milk contributed to an increasingly high incidence of death from infant diarrhea. Deaths occurred especially during summers, particularly in cities where, by the end of the 19th Century, women had begun to take jobs in new factories and, as a result, care of babies was neglected.

Scientific knowledge of disease was still relatively limited; but the Industrial Revolution was inseparably connected with parallel progress in the physical sciences. Thus, through the advancements of laboratory medicine occurring at this time, particularly in the field of immunology, the way was paved by the opening of the 20th Century for a sharp reversal in mortality and morbidity. The availability of pure water, of improved sewage disposal, and, shortly thereafter, of electric refrigeration represent noteworthy achievements. A generally

higher standard of living and a rapid rise in the level of working conditions were accompanied by significant strides in public education and a rise in the information level of the general populace. Concomitantly, rapid progress was being made in other areas of medical research as well as in the development of new skills for both prevention and treatment of infectious and communicable diseases.[2]

During the 19th Century, most deliveries were in the home. Serious pathologic cases were admitted to the lying-in hospital where specialized services could be made available to the mother. Usually, in the postpartal period the mother was too ill to assume the responsibility for the care of the infant. It was this situation, necessitating the separation of mother and infant, that gave rise to the central nursery and to other group standards of infant care. Thus, the central nursery plan was, at its origin, entirely functional. By the beginning of the 20th Century the hospital, with its increasingly specialized resources, gradually became regarded as the institution which could best offer the reassurance of a safe delivery to mothers who were understandably fearful of risks. This resulted in a gradual shift from home to hospital delivery for both non-pathologic *and* pathologic cases. Institutionally, this function was a new one for the hospital. And, as a means of efficiently distributing the service for which the hospital was now being depended upon, the central nursery plan, although originally devised for pathological cases alone, was indiscriminately adopted for *all* maternity admissions.

The rationale of professional hospital maternity practice from its origin may, therefore, be described as *protective* and

2 Martha O'Malley, M.D., "The Maternity Hospital in the Public Health Program" (Unpublished dissertation for degree of D.P.H., Harvard University, Cambridge, 1946).

defensive. Its end was the promotion of mother's and infant's physical safety, and the means chosen were deemed both necessary and desirable in view of prevailing insecurities in public health and limitations in scientific knowledge and available facilities. These means distinctly proved their worth at a time when care criteria were understandably and appropriately expressed in terms of reduction in mortality and morbidity. Statistical evidence of progress is at hand to substantiate that maternal mortality has been reduced by approximately 94 per cent since 1915. By the same token, infant mortality underwent a reduction of more than 80 per cent in the half century after 1900.

Yet, it must be recognized that it was in combating the threats of the past that these defensive efforts served as effective weapons. In the context of today's greater progress —as evidenced, for example, by advances in sterilization techniques, milk pasteurization, the use of immunization agents, antibiotics and the like—our index of performance can no longer be the death rate. Many of the routinized and proceduralized defenses have become merely outmoded controls, altogether devoid of their original meaning.

The broad and seemingly blind obedience to these patterns today can only be explained by the enormous degree of security which, through actual experience, has understandably become attached to them, and which accounts for much of the ritualism associated with them and thus for the reluctance to relinquish them.

Development of prototypes of scientific management techniques in the 19th Century

Another consideration which may well have had a significant bearing on the evolution of contemporary hospital be-

havior—with special application to maternity practice—concerns the early development of industrial management techniques. Interestingly enough, it was the doctrine of *moral utility* which seems to have been more than a little responsible for linking the institutional expansion of the hospital with that of the industrial plant from an operational standpoint. It was this doctrine of moral utility, in terms of which *ultimate good* was equated with an *ultimate economic return to society*, that enabled the 19th Century to justify the drastic changes imposed by industry on the total socio-economic life-scene.

Needless to say, this interpretation represents a curious mixture of the objectives of both right and left wing humanitarianism, for it was here that industry and hospital found common ground. Both, in accord with the 19th Century ideology, were institutions contributory to life and public well-being—industry, in a positive economic sense, and the hospital, custodially, in its clear commitment to relieve society of those deemed to be, if not social deviates, certainly socially inadequate. A rational social conscience was thus presumed to be behind both industry and the hospital.

In industry, especially during the second phase of the Industrial Revolution, there was a marked tendency toward the development of prototypal management techniques. The essential element of these was the emphasis placed upon organizational efficiency and task distribution in the use of labor to attain a high production output. To what extent these early managerial developments in industry might have served as models for the institutional forms adopted by the hospital is not entirely clear. Certainly the hospital was not immune to the example of industry and was, at this time, evolving a set of characteristic patterns of operation. Certain

specific situations—for example, the use of the central nursery, fixed-interval feeding schedules, and the like—bear testimony that the hospital was adopting disciplined and highly proceduralized routines, which it took to be the most efficient means for accomplishing its end. Although it is clear that the specific end was the patient, with technical advancements in laboratory medicine, stress came to be placed more and more on the means employed in protecting the patient's physical well-being and in treating the disease. In this sense it is suggested that as early as the turn of the century the first signs appeared that care was coming to be dispensed as though the hospital ward were a kind of production system —a machine—turning out its product by the application of controlled technical devices and routine procedures and taking the declining death rate as its index of measurable performance.

This conception implies a kind of manipulation of both patient and personnel, especially the nurse (for which there is already valid evidence), and in turn points to the origin of the even more ritualized, but less individualized, approach of today. It would seem reasonable, also, that this early mechanistic and organizational emphasis would likely have been a factor in reinforcing the already prevailing ritualistic behavior of the 19th Century which had itself lingered on from an earlier and less scientific—perhaps even pre-scientific—era in the treatment of the sick.

The sick-role in relation to the Victorian ideal of pure womanhood

The traditional custom common among the more privileged classes of associating maternity with sickness was sharply intensified early in the 19th Century by the events

of the first phase of the Industrial Revolution. These, as we have seen, altered the woman-role by removing domestic industry from home to factory. This shift, in turn, relieved the woman—mother and her daughters—of many conventional responsibilities and afforded a theretofore unknown degree of leisure, but simultaneously deprived her of her customary share in the economic productivity of the family.

The 19th Century was not socially and culturally prepared for the marked and far-reaching changes in social structure to which leisure was inevitably to contribute and, as a consequence, serious and jarring readjustment problems were posed—for the man and for the woman. The fact that leisure was now granted does not imply that the woman resigned her heavy family responsibilities, but rather that her time by comparison was less fully occupied and that her sense of purposeful activity and, therefore, her self-concept were threatened. This is understandable in view of her own educational shortcomings at the time and because of the comparative scarcity of available diversional opportunities for the average woman in industrial towns. Furthermore, she was denied the opportunity to seek reward outside of the home, either in the form of educational advancement or of employment. The rigidly traditional 19th Century social framework, with its characteristic patriarchal slant, would not readily accommodate any notion of social emancipation of the woman.

Finding available no other adequately supportive milieu, the 19th Century woman invented compensatory social devices through which to discharge her tensions and thereby restore some semblance of meaningfulness to her life. It is in this context that the Victorian cult of sacred womanhood found its most artfully ingenious expression in such senti-

mentalized fantasies as feminine weakness, fragility, respectability, prudish modesty and propriety. These ideals readily took on special and appropriate meaning in the maternity role, for it was there that the woman could win social acceptance in the form of sympathy and attention through "sickness" and, in the period immediately prior to delivery, through "confinement." Victorian woman was expected to be "sick" and to suffer the agonies of hell in childbirth. Moreover, a morally righteous woman could, in conscience, boast of her suffering in childbirth, for through suffering she achieved individual effectiveness and was able to demonstrate the "moral strength" and purity of her womanhood.

What may at first appear contradictory is that her suffering in childbirth also offered harsh but vividly realistic evidence of her "natural inferiority" as a woman. For, in accord with the cultural norms of the period, maternity suffering was viewed as a part of God's plan for her and as a duty to herself and to her husband. In accepting these precepts, she was denied the social support conducive to self-confidence and relaxation of psycho-physiological tensions in enacting her natural maternity function. There is little wonder that chloroform, though available as an aid in reducing suffering, came into use only slowly and with intense misgivings during the latter part of the 19th Century.

What has been said is in no way meant to suggest that the wife was deprived of her husband's gratitude and dutiful affections. Indeed, her gaudy display of delicacy and morality did much to assure his attentions, at least overtly. Yet it was her imminent bid for social equality —her *ace-in-the-hole*, so to speak—which secured her own position and which concurrently was a potential threat to the male's traditional position as the uncontested head-of-the-household.

These interesting patterns of social behavior may be explained on the one hand as an ingenious attempt, heavily weighted on the male's side, to re-affirm masculine supremacy and, on the other hand, both as a neurotic outlet for the woman and as a way of guaranteeing her prerogatives in the family unit, thereby securing herself against the social inequities which she could not yet overcome.

At the moment that Victorian behavioral synthesis achieved its most widespread acceptance, further developments, beginning as early as the 1870's, were underway which were to effect its ultimate though slow collapse. The discovery of new sources of power for manufacturing and the opening of new domestic and foreign markets during the second phase of the Industrial Revolution produced heretofore unheard of occupational opportunities which could not be fully met by the immigrant labor supply. This, coupled with the increasingly high cost of living and the flood of new inventions such as the typewriter, dictated further social changes by allowing a steady though gradual influx of women into factories and offices.

Thus, the Industrial Revolution clearly had a double-edged effect. On the one hand it intensified the subservience of 19th Century woman and on the other it set into motion in its later phase the occupational liberation of woman. Although the road to social change was now opened, the ideals of propriety and pure womanhood, so deeply enmeshed in the Victorian complex, dragged on into the present and continue to exercise lingering claims on woman's destiny by not fully extending to her the opportunity to achieve an adequate sense of self-confidence. There still prevails some controlling manifestations of Victorian "respectability," including the fears, tensions and anticipated suffering in

childbirth. The "sick-role" is still assigned to the hospital maternity patient, and even the term "sickness" itself, as associated with maternity vocabulary, is far from obsolete.

The three factors just examined may be isolated only for the convenience of discussion. Historically, they operated interdependently in the formative context of conventional maternity care.

Conventional hospital maternity care evolved in answer to the challenging health needs of the 19th and early 20th Century. It constituted a functional approach to combating maternal and infant infections and safeguarding the lives of both mother and child; and, in this connection, attained an enormous degree of success.

The principal patterns implicit in the term *conventional maternity care* are: (1) maternity experience is customarily enacted in an institutional setting, i.e., the hospital; (2) in an effort to protect the lives of mother and infant, emphasis is focused almost exclusively on a safe delivery and on related procedures and techniques oriented around what are traditionally considered the physical needs of both mother and infant; and (3) care patterns are structured as though the maternity process were a *dysfunctional* or pathological one rather than a biologically healthy one. Thus, the maternity patient is expected to play the sick-role. She is admitted to the hospital with a diagnosis of pregnancy and thereafter is confronted by all of the regulatory, diagnostic and therapeutic controls which prevail for the purposes of caring for the sick. In essence, there is set into motion an institutional organization which functions as though the patient were to be restored to a state of health, when in reality, except in the case of the comparatively unusual pathologic situation, her role is a normal and healthy one.

How these concepts become firmly entrenched in contemporary maternity practice may be better understood after this examination of the historical factors operating in the 19th Century.

The conventional approach to maternity care is characterized by certain critical inconsistencies.[3] Perhaps the most basic of these is that the point of departure of the conventional approach is disease-oriented, although no disease, in the true sense of the term, exists. Another obvious inconsistency concerns the characteristic separation of mother and child. In this connection, Montgomery stresses an aspect of particular interest:

As regards human reproduction, the relationship of mother and newborn has undergone considerable modification. In hospital delivery it is customary, for instance, to divide the umbilical cord a few minutes after delivery, carry the baby to another part of the delivery room or directly to the nursery, and return it to the mother's arms 12 to 24 hours later, depending upon the depth of anesthesia of the mother and the judgment of the obstetrician or pediatrician.

During this time and during his subsequent stay in the hospital the baby is placed in the nursery with some twenty or so other babies in various stages of newborn life, where it is presumed to enjoy the advantages of modern nursery practice and asepsis.

Just what advantages can ensue from the empirical method of dictating mother and baby relationship in the hospital is difficult to understand, for the nursery is neither sterile nor aseptic, and the personnel in the nursery is rarely adequate to cover the individual requirements of the many little patients who occupy it. Few babies accord to a rigid third- or

3 It must be acknowledged that many hospitals have in recent years introduced some degree of relaxation, as in the case, for example, of prenatal classes, postpartum demonstrations and "rooming-in." Yet these methods essentially remain procedure-oriented and may, therefore, be regarded as but variations of the standard conventional pattern.

fourth-hour feeding schedule and by the time the baby reaches the mother's breast twelve to twenty-four hours after delivery it may have lost much of its inclination to suckle.[4]

On the basis of this historical analysis, there are certain additional conclusions which in general terms may now be drawn. A brief discussion of these constitutes the theme of the remainder of this paper.

The rationale of conventional maternity care practice operates essentially in the patient's *present tense*, while tending to ignore her past and future. Yet the present is only one moment of time in her life history—a moment which cannot really be isolated. For a human being to be comprehensively understood as a total psycho-biological, social and cultural entity, it must be remembered that she exists in a *time-continuum* comprising *past, present* and *future*. As a total personality, she is actually the product of forces generated in a changing and multi-phase environment—an environment which has shaped her in the past, is shaping her in the on-going present and will reshape her in every moment of her future. More specifically, her state of being at any moment of her hospitalization—i.e., her conflicts, fears, anxieties, aspirations, understanding, etc.—is a complex of experiences which she has undergone in the past and is undergoing in the present. Not only can she anticipate a simple future tense, but on the basis of both the conscious and sub-conscious phenomena in her personality coupled with the impact of present and on-going experience, she realizes her human capacity to make judgments and decisions and thereby to contribute, to a significant degree, to the plotting of her own future. It is in the failure to take this into account in pro-

4 Thaddeus L. Montgomery, M. D., "Physiologic Considerations in Labor and Puerperium," *American Journal of Obstetrics and Gynecology*, 76: 711-712, 1958.

gramming maternity care that the conventional approach essentially neglects the totality of the individual.

The environment in which conventional maternity care is conducted is rigid and inflexible. It is an environment which does not readily and continuously undergo change in response to detectable changes in the psychological or physical needs of the patient. It remains fixed, always imposing expectations on the patient and demanding conformity by the patient to its standards.

The conventional maternity-care approach tends to ignore the broader educational needs both of parents and of personnel. Although in-service training programs are customary for personnel, and formal training in prenatal classes and through postpartum demonstrations is often available for parents, the conventional environment as a whole fails to furnish the circumstances and scope of experiences which enable people to relate to each other for meaningful learning and personality growth. For example, there is little planning and effort made to encourage parents—both mother and father—during the hospitalization period to participate under guidance in the care of their infant. In a way, this amounts to depriving them of the chance to understand themselves and each other better; to become acquainted with their infant's need patterns; and to discover, as a family unit, the promise inherent in the experience of childbirth.

There is a marked dissipation of the therapeutic potential of personnel, also. Personnel, in the traditional organizational structure, function not as therapeutic agents but rather as the human resources through which the *status quo* of the hospital, in the form of controls, procedures, etc., is transmitted to the patient. This relationship is a barrier between the nurse and her patient, for it prevents the nurse from

establishing a one-to-one relationship with her patient and from understanding the total needs of her patient. This appears to be true of all personnel. The situation is particularly typical of the professional nurse, blocking her professional aspirations and skills, preventing her from gratifying her own professional needs, and accounting for much of the organizational behavior for which she has been the target of recent public attack.

From both a physical and psycho-social viewpoint, the *principle of human differences* is essentially not taken into consideration in the conventional approach to maternity care. Indeed, traditional hospital routines, rather than the particular circumstances and varying needs of the individual patient, are the determinants for most operational situations. For example, all mothers are expected to conform to the same ward routine, yet both psychological and physical needs of one may be entirely unlike those of another. The same is true of infants, who are individual creatures even now in process of personality development. Yet inflexible management and routine nursing procedures in the nursery rather than the individual infant's growth dynamics are permitted to determine the infant's feeding schedules. Since the feeding process, so far as we know, is one of the infant's earliest drives for self-actualization, we are confronted with a practice which might quite possibly have a long-range influence on the future physical and emotional health of the child.

An attempt has been made here to identify certain dilemmas and to point out that these dilemmas arise not from any conscious or intentional neglect on the part of people, but rather in the way in which the care environment has come to be structured organizationally. These dilemmas have their counterpart in other hospital services.

The Rising Tide of Dangerous Drug Reactions

Morton M. Rodman

DISCOVERY of the sulfonamide drugs about a quarter of a century ago heralded the advent of a golden age of drug therapy. These first systemically effective antibacterial agents were soon followed by a swift succession of powerful chemicals that have, in the intervening years, brought many hitherto untreatable conditions under control.

Unfortunately, however, while the benefits these potent new chemical agents have brought to a suffering humanity are beyond calculating, these drugs have also added enormously to the hazards of medical treatment. Their steady stream into medicine has been accompanied by a rising tide of dangerous drug reactions. While the full extent of difficulties brought on by drug treatment has never been fully defined, the ever-increasing list of illnesses resulting from the administration of drugs makes it obvious that the problem is both a serious and a steadily advancing one.

The exact incidence of drug-induced syndromes and of what has been called, "diseases of medical progress," is unknown. Reports of toxic reactions to drugs range from as few as one-half of one per cent of admissions in some hospitals to as many as five per cent of all cases in other major medical clinics. It seems certain that many drug reactions are never reported, either because the diagnosis is missed, or because the doctor decides to ignore what seemed only a passing period of unpleasantness in the total manage-

ment of a patient who eventually recovered and went home.

In any case, the number of new books and comprehensive review articles, with their lengthy lists of bibliographical references, appearing in the past few years, attests to the seriousness of the drug-reaction problem and its complexity. It seems safe to say that every new drug is capable of causing adverse reactions in some patient, even when it is being used by the most conscientious and well-informed physician.

In a single article I can hardly hope to give you a comprehensive and definitive review of this extremely complex subject with all of its many ramifications into such fields as immunology, allergy and pathology. I do hope, however, that what I offer will give you some insight into the breadth of the problem. I propose to do this by citing examples of each of the major types of untoward drug reactions. Though I cannot, by this approach, do much more than skim the surface of many deeply involved aspects of drug toxicity, I would like to think that the cumulative effect of the examples will succeed in making you aware of the complexity of the situation, without inundating you with the details of the complications.

I hope, also, to point out reasons why these adverse drug reactions occur more frequently than they need to, and, though no one individual knows all the answers to the drug-reaction problem, to summarize what is currently being done to cope with some aspects of the situation. Finally, I will suggest how we doctors, nurses and pharmacists, as partners in the health team, can be effective in helping to prevent undesirable drug reactions.

First, let my try to present an overall view of drug toxicity in its broadest sense. This is not easy to do because of the conflicting nomenclature and classifications of reactions that

are employed by different groups of investigators. While I cannot mention every different type of drug reaction, I will not limit this discussion to drug allergy only, as is sometimes done in misguided attempts to narrow the problem to more manageable dimensions.

What is it about drugs that so often makes them the cause of illness rather than its cure?

There is no one simple answer to this question beyond the general statement that when a foreign chemical enters the internal environment of the body it can be *expected* to cause changes in body chemistry and function. After all, that is why a doctor administers a drug in the first place. He wants to bring about changes in the function of an organ, structure or system that will be beneficial to the patient. "But how," you may persist, "does the drug produce effects that were never intended nor expected?"

To answer this question let us look at the different kinds of adverse reactions that drugs often cause. I think we will find that many of the ill effects of drugs are largely *predictable* on the basis of what laboratory scientists have learned about the pharmacodynamic properties of a particular drug and on what the doctor should know about the patient getting the drug. But, we will also see that many types of sickness resulting from drug therapy are *not* readily *predictable* for any individual clinical situation.

Often, from a casual reading of both clinical articles and pharmaceutical company literature on a new drug, we get the impression that the so-called side effects the doctor reports or the brochure lists were entirely unpredictable. That is, we are led to believe that the patient's drug-induced symptoms stemmed from some hidden peculiarity on his part. In a sense, it is implied that it serves the patient right

for responding in such an idiosyncratic manner to such a safe substance.

While, as we shall see, personal idiosyncrasy does, indeed, play a part in many drug reactions, the truth is that many of the "untoward" reactions which occur should have been predictable—and, thus, to a great degree, preventable. That is, the drug reaction need not have occurred at all if: (1) the fundamental facts about all the drug's potential actions had been brought to the doctor's attention; and (2) he had thoughtfully applied such pharmacodynamic data to the particular clinical situation with which he was dealing.

Many unwanted drug effects are simply extensions of the known pharmacological effects of the compound. The doctor can often prevent their occurrence by taking time to prescribe the drug in doses adjusted carefully to the needs of the patient and by giving attention to certain readily observable phenomena which indicate the possibility of an "unusual" response by that particular patient.

For instance, in the treatment of heart failure with digitalis glycosides, drug-induced cardiac arrhythmias commonly occur. Yet, this potentially fatal "reaction" is usually the result of a failure to fit digitalis dosage to the patient's requirements in accordance with what we know about the drug's basic pharmacology.

When a slowly excreted digitalis glycoside is administered in maintenance doses that are even slightly in excess of the patient's needs, the drug begins to pile up gradually in the myocardium. This cumulative action of digitalis can cause many different types of rhythmic difficulties, including some that develop when the patient's underlying disease is worsening. Thus, with the rapid or insidious development of a digitalis-induced ventricular tachycardia, the doctor may

actually be misled into raising the dose of digitalis instead of reducing it. The result could be fatal digitalis intoxication.

The likelihood of such toxic reactions has actually increased in recent years with the advent of potent new diuretic drugs. When these agents are used as adjuvants of digitalis, they may potentiate the effects of digitalis on the heart by causing the removal of excessive amounts of potassium ions in the urine. Thus, the doctor has to keep in mind the possibility that drug-induced hypokalemia may produce a more powerful digitalis action than he had planned.

Other situations come to mind in which toxic drug reactions can be avoided by applying available facts about the physico-pharmacological properties of the chemical and the condition of the patient. If we know, for example, that a drug is largely eliminated from the body by being broken down by liver enzyme systems or by being excreted through the kidneys, we should not be surprised if a seemingly safe dose of the drug causes sudden severe toxicity when it is administered to a patient with hepatic or renal disease. Such patients need not have received an actual overdose. For them, a relatively safe dose acts as an overdose because of pathological factors of which the physician should be well aware.

Administration of sleep-producing doses of certain barbiturates to patients with undetected liver damage has resulted in prolonged coma or even in respiratory failure. The patient's failure to metabolize the drug adequately causes it to reach unusually high concentrations that are maintained for long periods, thus abnormally increasing the drug's duration of action.

Similarly, injecting even ordinary doses of streptomycin into a patient suffering from renal insufficiency may result

in an unusually high level of the drug building up in his blood and body tissues. If the doctor does not give adequate attention to this possibility, the drug may reach concentrations high enough to damage the eighth cranial nerve and cause permanent deafness.

A reaction of this kind cannot truly be labeled "hypersensitivity." It is the result of administering the drug in a manner that allows it to reach concentrations capable of causing one of the agent's predictable pharmacologic effects. This same principle operates in the occurrence of many other of the "side effects" that accompany drug therapy.

One of the chief facts of pharmacological life is that most drugs have multiple actions. This truism is often obscured by the emphasis that is usually put on any drug's main action—that is, on the action having the greatest practical clinical utility.

Unlike the student who is usually happy to remember the *primary* action of any drug, the pharmacologist is aware that most drugs elicit a variety of effects. Many of these secondary effects turn up during the routine pharmacological screening of a new chemical. From the results of a battery of such screening tests, we can draw the pharmacological profile of any chemical. This can be expressed by a series of dosage response curves from which we can determine how much of the drug is likely to produce a particular effect under certain standard conditions.

Ideally, the doctor would always want a drug to have just one action. Or, at the very least, he would like to have a drug with a wide margin between the dose that produces the primary, or desired effect and the much larger dose, which acts at other bodily sites to elicit the undesirable secondary effects. In practice, we have extremely few drugs

so specific in their effects that they cause only the desired response when given clinically. With most drugs, the doctor has to accept that therapeutically effective doses are likely to cause any of a variety of undesirable side effects in a few or, sometimes, in nearly all of his patients. If a drug does its main job well, both doctor and patient are often willing to endure the minor discomfitures that stem from the drug's secondary effects.

In some situations, however, a drug's side effects may prove too severe for a particular patient to warrant the risk of continuing or even starting the drug. This is true when the patient is, for one reason or another, more susceptible to one of a drug's secondary actions than he is to the sought-for effect. In such cases, even the most careful adjustment of dosage may fail to bring about the desired response in doses that are safe for the patient, and the drug must be discontinued.

For example, among the older drugs we find that belladonna derivatives cannot be administered as antisecretory-spasmolytic agents when the patient is also suffering from glaucoma, or if he has prostatic hypertrophy. In such hypersusceptible individuals, the secondary actions of atropine that most patients find annoying, but bearable, may become dangerous because of the possibility of sharp increases in intraocular pressure or prolonged bladder atony and urinary retention.

Similarly, among the newer agents such as certain of the phenothiazine-type tranquilizers, we encounter patients who are excessively susceptible to a secondary effect to which the majority of patients are relatively resistant—namely, motor system stimulation. Thus, relatively low doses of Compazine, Stelazine, Prolixin and similar drugs have sometimes set off

severe extrapyramidal disturbances — not only Parkinson-type tremors, but even severe convulsive spasms—in patients who proved hypersusceptible to what is apparently one of the fundamental pharmacologic effects of these drugs.

The point I wish to emphasize is that it is imperative for all of us to learn to recognize the secondary actions of new drugs, so that we can, each in our way, try to do something about minimizing their discomforting and even dangerous clinical effects. Since these effects *are* predictable, we should be able to anticipate and stop them before they become too severe to be borne. When an allergic patient, for instance, responds excessively to the central depressant effects of an antihistamine agent, the doctor may try switching him to another drug of this class to which he may be more tolerant. Or, he may prescribe the anti-allergy agent in combination with doses of a central stimulant capable of counteracting the patient's drowsiness. And, certainly, an awareness of the possible occurrence of such sedation permits us to warn the patient against driving a car or operating dangerous machinery while taking this medication.

Still another type of secondary drug effect is sometimes a source of unexpected illness. Here, however, the ill effects stem, not from an unlooked-for pharmacological action of the drug on the tissues of the patient, but from an ecological imbalance brought about in the microbial population of the host's tissues.

Illnesses of this sort are among the greatest hazards of modern antibiotic treatment. The effectiveness of these anti-infective agents against susceptible strains of microorganisms has led to the emergence of resistant strains of staphylococci and other organisms capable of causing difficult-to-treat infections, often worse than those which were common before

the advent of the antibiotic or miracle drug therapy era.

The most dangerous of these drug-induced infections include staphylococcal pneumonia, diarrhea and endocarditis. These serious illnesses now arise fairly frequently in patients treated with antibiotics for other diseases. It is generally believed that the resistant staphylococci grow profusely and gain control when broad spectrum and other antibiotics destroy the normal bacterial flora of the invaded tissues. It is also claimed that this whole process has been accelerated by the indiscriminate use of these antibiotics for prophylaxis and by attempts to treat conditions for which they are not actually indicated.

Another fairly common complication of antibiotic therapy is caused by overgrowth of the fungal microorganism, Candida albicans. Here, too, administration of broad spectrum antibiotics, especially to debilitated patients, wipes out many of the microorganisms that normally keep yeastlike fungi under control. The latter can then proliferate unchecked to cause moniliasis of the skin and mucous membranes. There is also some evidence that the simultaneous administration of corticosteroids may speed the invasion of internal organs, causing so-called disseminated moniliasis, a potentially fatal disease.

Fortunately, as physicians have been made aware of the potential dangers of indiscriminate antibiotic therapy, they have tended to employ these "wonder" drugs more cautiously and selectively. The advent of various newer antibiotics effective against organisms resistant to earlier agents has also helped keep the situation from getting entirely out of hand. Nonetheless, the near-catastrophe caused by the very effectiveness of these most wonderful of the wonder drugs serves to highlight the hidden dangers that so often

seem to be associated with modern drug therapy.

My last example of how drugs can act indirectly to cause deleterious end-results shows how unprepared we usually are for the occurrence of some kinds of adverse effects. These untoward effects often may take place under the best of circumstances—that is, even when a new drug has been thoroughly studied in the laboratory and has had a seemingly adequate period of clinical trial before being approved by the Food and Drug Administration for prescription use.

Reactions of these types cannot always be predicted from prior toxicity studies in animals, nor can the doctor usually know in advance which of his patients is going to react badly to a new drug. (Later, of course, if enough information has been accumulated and properly disseminated, these "unpredictable" reactions can be more readily recognized by the alert physician, even when they are in their earliest stages. Or, he may even prevent their occurrence in the first place.)

These adverse reactions have been called by many names —idiosyncrasy, allergy ,hypersensitivity, metasensitivity, etc., etc. Without splitting semantic hairs with the purists, I will say they have these characteristics: (1) The ill effects do not stem from the drug's ordinary pharmacological actions. (2) They do not occur the first time the drug is given, but after some later administration. (3) The amount of drug that sets off the reaction may sometimes be minute—that is, these are *not* true toxic effects resulting from drug overdosage.

The reasons for these unpredictable reactions are often obscure, but some of the most common ones resemble the allergic reactions that occur in people who are sensitive to foreign proteins in foods and other materials. As in such

allergies, most drug reactions are the result of an antigen-antibody reaction. This allergic reaction provokes the liberation of chemical mediators which are the actual cause of the many different types of ill effects that often develop in various organs and tissues.

Some drugs are, themselves, proteins, and therefore are capable of acting as complete antigens. Insulin, chymotrypsin and fibrinolysin are examples of these. But most chemicals are small molecules that are, themselves, not antigenic. However, they are believed to act as *haptens*. That is, the drug combines with body proteins to form what is, in effect, a foreign protein. The tissues of susceptible people react to this by producing antibodies against it that are thought to stay attached to tissue cells.

When such a "sensitized" person is re-exposed to the drug, a typical hypersensitivity reaction occurs. Sometimes this is manifested by relatively mild symptoms, but occasionally, the reaction is violent and rapidly fatal. In most cases, the usual tests for allergy to proteins are not very helpful in detecting drug sensitivity.

These allergic reactions to drugs take several forms, some similar to the usual clinical symptoms of allergy to proteins, others so different that some experts aren't quite convinced that they are truly "allergic."

In one type of reaction, the ill effects come on immediately after the patient takes or is given the drug. This is the sort of reaction sometimes seen after administration of a single aspirin tablet or a penicillin injection. It may be manifested mainly by skin symptoms—the sudden appearance of raised, itchy swellings (urticaria or hives)—or, rarely, the reaction may be explosive and anaphylactoid.

In these severe systemic reactions, death can occur in a

few minutes, either from asphyxiation resulting from an acute asthmatic attack and laryngeal edema, or from circulatory collapse following a sudden profound fall in blood pressure. These signs and symptoms are the pharmacological effect, not of the drug, per se, but of histamine and possibly other substances released in the "shock tissues" by the antigen-antibody reaction.

While such fatal anaphylactic reactions are, statistically speaking, relatively rare, the total number becomes significant with drugs as widely used as penicillin and aspirin. Fatal anaphylactic reactions following penicillin are estimated to occur only once in every million injections. Yet, when we consider how widespread the use of this valuable antibiotic has become, we can understand why penicillin anaphylaxis has caused so much concern.

Of course, less severe reactions are much more common. These are often manifested by the appearance, after a delay of several hours or days, of skin rashes, fever, joint pain and swelling, and other ill effects that may be extremely uncomfortable and incapacitate the patient for a long time.

Sometimes it seems from the reports that there is not one drug that cannot produce skin eruptions in some patient. The list of these drugs has been so greatly expanded that it is practically worthless as a tool for predicting drug allergies. Nonetheless, it is still well for the doctor to be aware of which kinds of chemicals are most frequently implicated. The sulfonamides and their more recently introduced relatives, the sulfonylurea anti-diabetes drugs and the thiazide-type diuretics are examples of these. (There has, by the way, been an increasing incidence of photo-sensitivity reactions to these drugs and to the phenothiazine-type tranquilizers. New antibiotics—Declomycin and griseofulvin, for

example, have also been recently reported to sensitize the skin to sunlight, so that severe itching, burning and redness may result.)

Among the most serious delayed reactions to drugs are those that damage the liver and bone marrow as well as the skin. Such potentially fatal reactions are rarely seen during the drug's routine clinical testing. Usually, reports begin to appear only after the drug has been administered to hundreds of thousands of patients.

Two main types of drug-induced liver damage, resulting from hypersensitivity, seem to be showing up. Chlorpromazine (Thorazine), norethandrolone (Nilevar) and chlorpropamide (Diabinase) are examples in an ever-lengthening list of newer agents now known capable of causing jaundice of the obstructive type. This is apparently the result of a reaction that damages the bile channel lining of susceptible people. While it usually disappears when the drug is withdrawn, it may continue for many months. Sometimes, when the symptoms are acute, it offers a difficult diagnostic problem and has necessitated exploratory laparotomies to differentiate it from other surgically-treatable causes of hepatic obstruction.

Other kinds of drug-induced liver reactions are much more serious. Certain drugs—not considered "poisons" in the sense that carbon tetrachloride, chloroform and other halogenated hydrocarbons are poisonous or hepatotoxic—have caused severe inflammatory reactions, resulting in damage to liver cells and often in death of the patient.

The most recent example of this type of hepatic hypersensitivity reaction occurred with the prototype anti-depressant agent, iproniazid (Marsilid). As is usual in such situations, cases began to turn up only after millions of

doses had been administered, long after the drug was on the market. Typical, also, was the difficulty in proving a causal relationship between the drug's action and the patient's liver disease. For one thing, the ill effects developed slowly, resembling viral hepatitis histologically.

However, this drug has finally been withdrawn and replaced by newer psychic energizers claimed not to cause this form of liver damage. Nonetheless, all the newer monoamine oxidase inhibitor-type antidepressants require caution in administration. Doctors using them should have a battery of liver tests performed on the patient at the start of the treatment and periodically during drug therapy.

Among the most serious of all drug reactions are those involving the blood-forming organs. While these blood dyscrasias—diseases such as hemolytic anemia, thrombocytopenia, agranulocytosis and aplastic anemia—affect only a tiny fraction of the people taking the drugs involved in these reactions, they are so frequently fatal that there is considerable cause for alarm.

One of the first drugs to be implicated as a cause of agranulocytosis was the antirheumatic-analgesic, aminopyrine. Though the percentage of patients suffering this effect is small, it seems imprudent to risk a potentially deadly reaction when treating relatively minor conditions—especially when salicylates offer a much safer means of treating the same conditions. So, aminopyrine has largely disappeared from products in this country, though it is still widely employed in Europe; and certain of its chemical relatives, notably phenylbutazone (Butazolidin), are in use here.

When a doctor is forced to use a drug like phenylbutazone in severe arthritis, he is obligated to keep a close watch on the patient. This involves making frequent blood studies

during treatment with this drug and warning the patient to report immediately such signs as sore throat and fever. These symptoms may signal the onset of infection resulting from interference with one of the body's first lines of defense, the granulocytes.

Perhaps, the most common drug associated with a blood dyscrasia in recent years has been the antibiotic chloramphenicol (Chloromycetin). Despite all sorts of arguments to the contrary, it now seems quite clear that the use of this drug can cause pancytopenia in a small proportion of patients taking it. However, unlike aminopyrine, chloramphenicol may be a life-saving drug, one for which there may be no substitute in certain types of overwhelming infections. In such cases, doctors may feel that the advantages of administering this antibiotic outweigh the relatively slight statistical risk of severe blood dyscrasia.

The trouble is that Chloromycetin and other potentially dangerous drugs are sometimes prescribed for treating conditions for which they are not needed—infections that would have responded to other, safer drugs or, perhaps, to no treatment at all. The occurrence of a fatal blood disease in such circumstances is truly tragic. Therefore, the indiscriminate use of Chloromycetin—or, for that matter, any other chemical capable of causing reactions—is poor medical practice and should be strongly condemned. Yet, despite the frequent warnings by various authoritative groups, there is still all too frequently a blithe disregard of the rules for proper employment of antibiotics and other potentially dangerous drugs.

Sometimes it does become necessary to take the risk involved in using such drugs. But, I repeat, in such instances, the doctor must be aware of the drug's potential to do harm,

and he should take every precaution to detect the first signs of such sensitivity reactions. Ideally, to be sure, it would be better to screen out all such agents or to detect the small fraction of patients likely to react poorly to them. Unfortunately, this has rarely been possible up to now.

Perhaps, as we acquire a better understanding of the precise mechanisms involved in these "hypersensitivities" or "idiosyncracies," it may become possible to single out the kinds of molecules and the kinds of people that should be kept apart. In a few instances recently, scientists have been able to trace the exact enzymatic defects responsible for certain severe drug reactions.

An interesting example of this may be seen in the discovery of the reason why certain people tend to develop a severe hemolytic anemia when taking the antimalarial agent, primaquine. You may recall that when this drug was given to soldiers returning from the Korean conflict, it occasionally caused this blood dyscrasia. The incidence of the illness was much higher in Negro soldiers than in whites.

This greater susceptibility of Negroes to primaquine's ill effects on red blood cells has been traced to a genetic difference. That is, a higher proportion of Negro men (about 15 per cent) have been shown to be deficient in the cellular enzyme, glucose-6-phosphate dehydrogenase. This leads to a substantial reduction in the concentration of glutathione in the erythrocytes of these individuals. And such glutathione instability renders the red cell more sensitive to hemolysis by primaquine.

Now, the importance of these findings is, of course, that it is now possible to detect susceptible individuals prior to therapy by means of laboratory tests. This is true, not only for primaquine, but also for the hemolytic anemia caused by

sulfonamides, acetanilid, acetophenetidin, and even aspirin, all of which are more likely to cause this drug reaction in people with this particular genetic-enzymatic deficiency.

Examples of other gene-mediated enzyme deficiencies involved in "idiosyncratic" responses to drugs are beginning to be discovered. The prolonged apnea produced by the usually rapidly destroyed muscle relaxant, succinylcholine (Anectine) has been traced to a deficiency of the enzyme, pseudocholinesterase. This enzyme, which may be lacking because of hereditary factors or on account of liver disease, plays a primary role in the rapid destruction of succinylcholine. It is not surprising, therefore, that in its relative absence some patients suffer an unusual, severe reaction to the drug's muscle-paralyzing property.

It is possible to do something practical about preventing *some* drug reactions, instead of figuratively shrugging our shoulders and calling them "unpredictable." Similarly, the more we learn about the role of enzymes in the detoxication of other drugs, the more readily we will be able to predict and prevent unexpectedly severe reactions.

Thus, the recent finding that premature infants are frequently deficient in a variety of important enzymes has helped explain certain severe reactions suffered by babies receiving seemingly safe doses of sulfonamides, chloramphenicol and other drugs. Such knowledge should prevent the occurrence in the future of the types of fatal reactions to drugs previously reported in these circumstances.

In the course of this article, I have tried to couple my remarks about each of the different types of reaction with information on what might be done to minimize the likelihood of such reactions developing during drug therapy. From this it should be obvious that the primary responsi-

bility for avoiding untoward reactions to drugs lies with the doctor who prescribes or administers them. It is still up to him to heed the age-old admonition: *Primum non nocere*—"First of all, be sure you do no harm." For, as Sir William Osler reminded practitioners early in this century before the problem had grown to its present proportions, drugs are double-edged weapons that require knowledge and alertness on the part of the physician in order to prevent adverse reactions and avoid development of serious complications.

It's up to the doctor to learn how to use drugs in ways which will bring his patients the benefits of modern treatment with a minimum of their dangers. And, the place of the nurse and the pharmacist, as I see it, is to help the doctor to use these drugs properly: the nurse in her capacity as an enlightened observer, and the pharmacist as the consultant—the expert on drugs to whom the doctor can turn for information.

In the first instance, we must realize what most medical authorities themselves readily admit: The average doctor does not have the time to arm himself with a complete understanding of the large number of new drugs that are constantly being marketed for the treatment of all forms of physical and mental disease, nor does the nurse.

When I describe the nurse as an enlightened observer, I refer to the professional nurse who has learned to know and understand her patient to the degree that she notices small changes in his physical appearance, function, mood and behavior; the nurse who compares and contrasts the various aspects of her patient's condition while observing him in totality from minute to minute, hour to hour, day to day, and week to week. This is the nurse who is sensitive to transitory and barely perceptible modifications in her pa-

tient's condition as well as to the more obvious and persistent changes. As a member of the therapeutic team, she relates what she observes to what she knows of the patient's drug therapy and communicates her observations and nursing interpretations to the attending doctor. Also, on the basis of her observations and knowledge of the pharmacodynamic properties of a drug, she takes responsibility to use her judgment to withhold a dose when she deems it necessary until she can provide the doctor with the pertinent information that will enable him to decide whether or not to continue the medication. This kind of professional observation necessitates and requires continuity of nursing care and coordination of that care between tours of duty in hospital nursing services, as well as a knowledge of pharmacological effects in the clinical situation.

The pharmacist can help by keeping data on file dealing with dosage and administration methods as well as recent reports on side effects and toxicity that the doctor and nurse may not have seen—information that may not be available in the literature put out by pharmaceutical companies, or which the detail men, on whom the doctor often depends, may be unwilling or unable to supply.

All too often, as we all know, doctors are under heavy pressure to use drugs about which they have inadequate information. This pressure comes from advertising agencies that are more concerned with offering him pretty pictures and puffery than in supplying fundamental information about new drugs. Doctors often get the bulk of their ideas from colleagues not much better informed than they are or from detail men trained to emphasize claims for the superiority of their company's product rather than to discuss its possible disadvantages and dangers. And, finally, the public itself

puts pressure on the doctor to use new wonder drugs before he can possibly inform himself on all aspects of their action. The pharmacists can often help individual physicians and nurses acquire unbiased, factual information in such situations. The pharmacists may also actually be able to add to the pool of new drug data through his own research efforts. Certainly, many hospital pharmacists, at least, have been doing just that for several years now. They have been cooperating with the Food and Drug Administration and with the American Medical Association's Study Group on Blood Dyscrasias by gathering information on all adverse drug reactions that occur in their institutions, and reporting all reactions in which there is a reasonable suspicion that a drug is responsible.

It is not possible to determine the final status of a drug's safety at the time a new drug application becomes effective. The knowledge that can be gained only through use of the drug on thousands of people is essential for full delineation of the drug's safety or potential for harm. For this reason, the FDA is vitally concerned with gathering information on all drug reactions with minimal delay. Often, the number of cases of illness and injury induced by a drug multiply between the time the first reactions occur and the first papers on them begin to appear.

If, on the other hand, individual physicians, pharmacists, and nurses working through their hospital committees or associations, promptly report cases occurring locally the time it takes to draw a more accurate picture of a drug's toxicity status would be markedly shortened.

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MEMO ON NURSING FORUM

TO: NURSING FORUM Readers.

FROM: Alice R. Clarke.

The first issue of NURSING FORUM begins with this, the Winter issue 1961-62, rather than the Fall as originally planned. The change was made in response to requests from librarians in schools of nursing to have the subscription year correspond to the calendar year. This method, they contend, will simplify bibliographical notations, volume binding, subscription renewals and bookkeeping procedures.

NURSING FORUM will, therefore, be published quarterly, beginning with the present Winter issue. The Spring issue will be mailed to subscribers on March 1st, the Summer issue on June 1st. However, the Fall issue, the last of the first volume, will not be mailed until October 1st to accommodate those still on vacation on September 1st.

Subscriptions now in effect will automatically be extended through the Fall issue. Renewals will begin with the Winter issue, 1963. New subscriptions will begin the first issue of each volume, i.e., the Winter issue. To illustrate: New subscribers will be provided with all past issues of the subscription year regardless of the month the subscription is ordered. Individual copies may be purchased separately.

We thank all of you who responded to our pre-publication offer. By your expression of interest and faith you made this publishing venture possible. We thank you, too, for your infinite patience with us as you waited for the first issue of NURSING FORUM to materialize.

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